

F601
A48

JOURNAL

OF THE



OF CALIFORNIA
G 14 1944
LIBRARY

81st
Annual Session
Chicago
August 22-24
1944



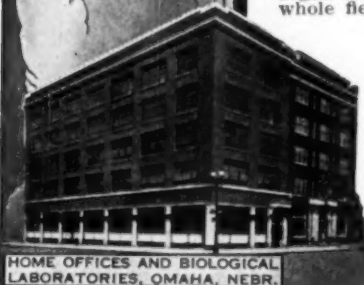
AVMA Convention Month

Noteworthy Annual Event of Animal Industry

Within the annals of the "serum industry" the conventions of the American Veterinary Medical Association are viewed as (1) *educational* and (2) *directive*—educational in the sense that specialized knowledge is required to improve animal health and directive in respect to upholding the dignity of veterinary practice.

In theory and practice, the long Corn States custom of honoring the advancement of veterinary science as well as its strict regulation in behalf of successful livestock production, ratify the steadfast principles set forth by the professional organizations, and incidentally mould the pattern for the whole field of animal therapeutics.

INVITATION TO VISIT THE CORN STATES PLANTS EN ROUTE TO THE CONVENTION AND ITS BOOTH AT THE PALMER HOUSE, CHICAGO, DURING THAT EVENT IS CORDIALLY EXTENDED.



HOME OFFICES AND BIOLOGICAL
LABORATORIES, OMAHA, NEBR.



SERUM PLANT, RALSTON, NEBR.



SERUM PLANT, 44TH ST. AND U ST., OMAHA, NEBR.

The **Corn States Serum Co.**
Omaha, Nebraska

Koroseal^{*} is Available NOW!



The genuine Koroseal stomach tube made by Norden from non-rubber Koroseal tubing.

Koroseal stomach tubes are . . .

1. Non-Rubber.
2. Firm, "fire-polished".
3. Smooth as glass—require no lubrication nor stilet for easy passing.
4. Oil-resistant. Samples immersed in oil for two years show no evidence of deterioration.
5. Long-lasting. They do not soften, crack or rot . . . one Koroseal will outlast several rubber tubes.

*A TRADE MARK OF THE B. F. GOODRICH CO.

For Horses and Colts



Regular size lumen, but 1/8" smaller outside, for easy nasal passing.
 NL 672 (Regular).....\$3.80



For Cattle and Horses
 NL 673 (Medium) \$4.40

Injection Pump "Heavy Duty"



1. Chrome Plated
 2. Made of heavy brass
 3. Tapered tubing connection
 4. Double leather piston packing
 5. Double Action—injection or suction
- NL 66.....\$4.40

See page 211 New Norden Catalog

MAIL IN YOUR ORDER TODAY!

NORDEN LABORATORIES

"The Mark
LINCOLN



of Quality"
NEBRASKA

Journal of the American Veterinary Medical Association

CONTENTS

GENERAL ARTICLES

Congress Uplifts the Status of Federal Veterinarians.....	57
Dairy Cows Killed by Lightning—Leo S. Richardson.....	67
The Advancement of Veterinary Medicine Through Motion Pictures—Arthur G. Boyd.....	69
Equine Encephalomyelitis in the United States in 1943—A. W. Miller.....	72
The Causes of Outbreaks of Bovine Coccidiosis—Donald C. Boughton.....	74
Home-Made Hypochlorinator—E. E. Grinstead.....	78
Mortality of Mammalian Young with Possible Nutritional Causes—Mark L. Morris.....	80

SURGERY AND OBSTETRICS

Bovine Uterine Torsion—William E. Welsh.....	83
Deaths from Anesthesia.....	84
Is High Altitude a Factor in Iliac Thrombosis of Horses?.....	85
Ether Anesthesia for Boars and Colts.....	85
Cesarean Section in a Goat.....	85

CLINICAL DATA

Three Types of Johne's Disease.....	86
Mastitis: Young Doctors Too Timid.....	86
Mechanism of Milk Fever Cure.....	86
Portable Cattle Chute for Field Work.....	86
Phosphorus Deficiency in Southwestern Cattle.....	86
Acetonemia (Ketosis) an Avitaminosis.....	87
No Feeder Knows His Own Feed.....	87
Salt the Foremost Mineral Deficiency.....	87
Practical Diagnostic Tests for Veterinarians—Lewis E. Harris.....	88
A Natural Case of Canary Malaria—F. R. Beaudette.....	91

OFFICERS: Charles W. Bower, *President*; James Farquharson, *President-Elect*; J. G. Hardenbergh, *Executive Secretary*; J. V. Lacroix, *Treasurer*.

EXECUTIVE BOARD: O. V. Brumley, *Chairman*; C. C. Hastings, *Member-at-Large*; A. E. Cameron, *1st District*; S. F. Scheldy, *2nd District*; J. L. Axby, *3rd District*; W. E. Cotton, *4th District*; F. M. Willson, *5th District*; L. M. Hurt, *6th District*; Chas. H. Seagraves, *7th District*; Ashe Lockhart, *8th District*; W. A. Hagan, *9th District*; O. V. Brumley, *10th District*; Charles W. Bower, *ex-officio*; James Farquharson, *ex-officio*.

BOARD OF GOVERNORS: O. V. Brumley, *Chairman*; Charles W. Bower; James Farquharson; (= Committee on Journal).

EDITORIAL STAFF: J. G. Hardenbergh, *Managing Editor*; L. A. Merillat, *Editor-in-Chief*; Helen S. Bayless, *Assistant Editor*. *Associate Editors:* J. R. Beach, E. A. Benbrook, R. R. Birch, John B. Bryant, J. A. Campbell, C. H. Case, J. E. McCoy, Ward Giltner, W. F. Guard, Raymond A. Kelsner, J. A. S. Millar, John R. Mohler, J. E. Shillinger.

FOREIGN LANGUAGE ABSTRACTING: Chas. H. Haasjes (Dutch), E. E. Hamann (German), A. G. Karlson (Scandinavian).

\$7.00 per annum. Foreign \$8.00; Canada \$8.00 Single Copies 75 cts. prepaid in U. S.

Published monthly at 600 S. Michigan Ave., Chicago, Ill., by the American Veterinary Medical Association. Entered as second class matter August 10, 1922, at the Post Office at Chicago, Illinois, under the act of March 3, 1879. Accepted for mailing at special rate of postage provided for in Section 583, act of February 26, 1925, authorized August 10, 1933. Contents copyright 1942. Reproduction of any part of this publication is prohibited, unless special permission is given. Permission will be given if the purpose seems justifiable and, in signed articles, if the rights or requests of the author are not violated thereby. Reprints should be ordered in advance. Prices will be quoted after publication. Please send prompt notice of change of address, giving both old and new. Advise whether the change is temporary or permanent. Address all correspondence to American Veterinary Medical Association.

Journal of the American Veterinary Medical Association

Copyright 1944 by American Veterinary Medical Association
600 S. Michigan Ave., Chicago 5, Ill.

VOL. CV.

AUGUST, 1944

NO. 809

Congress Uplifts the Status of Federal Veterinarians

(An Editorial)

AN ACT of Congress, passed June 19, 1944, raises the veterinarians of the United States Department of Agriculture to the level of other professional groups of equal educational status: pathologists, bacteriologists, chemists, entomologists, zoölogists, economists, engineers, lawyers. Various livestock organizations collaborated with the American Veterinary Medical Association in a nationwide effort to effect the reclassification of federal veterinarians to accomplish that end. Although the result may seem incomplete in minor respects, the advance from the profession's point of view ranks with the principal achievements of organized veterinary medicine in behalf of the American veterinary service.

With the high rating obtained for military veterinarians in mind, after more than thirty years of continuous effort, the AVMA has never ceased to look askance at the low pay and rating of Bureau veterinarians as an impediment to the advancement of other branches of the service: state, municipal, collegiate, commercial, private. Frankly stated, the federal government pinned the badge of inferiority upon the graduates of the veterinary colleges and thus unintentionally frustrated normal advancement of the whole profession, while comparable groups mounted to greater heights through the ever-increasing need of scientific men in federal office. The plea for upgrading the personnel of the Bureau veterinary force was based, therefore, not only upon acknowledged personal inequity but, more particularly, upon the retrogressive effect of the discrimination sanctioned through the years by the federal government to the disadvantage of

farm-animal production and public health. While the gains obtained from within the Bureau since it was established are acknowledged, they (the gains) had not kept pace with the advancement of comparable pursuits in recent years and thus held veterinary medicine tethered below the desirable level.

The AVMA has had the task of obtaining the correctional reclassification on its agenda for several years but was deterred for various reasons and, more recently, by the many difficult problems of the war itself. This year, however, the budget for 1944-45 presented to the Seventy-Eighth Congress contained requests for the needed funds, and hearings before subcommittees of both Houses brought out every detail of its merits. In the face of a nationwide demand to trim appropriations "to the bone" nothing save the merits of the case, wisely presented by livestock and professional agencies, could have achieved favorable action. The magnitude of the effort is abridged for the records on the following pages.

THE PROBLEM

On the government's side was the declared difficulty of maintaining an adequate veterinary force under the prevailing personal inequity. Out of 50 eligibles recently certified to the USDA by the U.S. Civil Service Commission for junior veterinarian, none accepted, and since April 1, 1943, 168 federal veterinarians, of whom 50 went into private practice, left the federal service. Moreover, under the existing classification, 555 out of a total 977 were rated as P-1, meaning that their initial pay was \$2,000, and maximum \$2,600 a year. Two men remain in that grade after thirty and forty

years of service. These figures are taken from statements made by key officials* of the USDA before the Senate committee.†

On the veterinary profession's side were arguments on the unfairness of the existing classification and its deteriorating effects on the present and future operations not only of the federal service but also that of the entire United States. If not corrected, more and more lay inspectors under fewer and fewer veterinarians, subdued by low classification and prospects, would augur an unfavorable trend that both the livestock industry and the veterinary profession were constrained to improve through the reclassification of the federal veterinarians.

Figures presented to the House of Representatives by Congressman George W. Gillie of Indiana showed that there were 591 veterinarians in the P-1 grade (\$2,000 to \$2,600 a year). Of these, 256 had served more than five years, and 65 more than ten years. Of 294 in grade P-2 (\$2,600 to \$3,200 a year), 237 had served more than ten years, 165 more than twenty years, and 26 more than thirty years. Congressman Gillie and 11 of his colleagues in the House also pointed out that the "poor salary situation is well known to veterinary students and schools and for years the Department [USDA] has not been able to recruit sufficient, good personnel . . . and in recent years separations have exceeded the number that could be recruited. Both disease-control and meat-inspection groups are at present understaffed."

Moreover, the testimony before the Deficiency Subcommittee of the Committee on Appropriations in the fall of 1943 showed that 61.5 per cent of the professional employees of the Bureau of Animal Industry were in the P-1 grade, while no other large group of the USDA contained more than 21.2 per cent in that grade. In

view of these facts, Congress was petitioned, when the reclassification item in the new budget was before it, to correct the inequity because "The deterioration of the animal-disease control service cannot be looked upon with complacency by the livestock industry of the country. Neither is it believed to be good policy to allow the fine meat-inspection service . . . to disintegrate." The signers were:

American National Livestock Association—Denver

A. D. Brownfield, Pres., F. E. Mollin, Exec. Secy. and Treas.

American Pork Producers Association—Peoria, Ill.

Ted Anderson, Pres., Eugene Harsh, Secy. National Livestock Producers Association—Chicago, Ill.

B. B. Brumley, Pres., P. O. Wilson, Secy. National Wool Growers Association—Salt Lake City, Utah

G. N. Winder, Pres., J. M. Jones, Secy. Texas and Southwestern Cattlemen's Assn.—Fort Worth, Texas

Holman Cartwright, Pres., Henry Bell, Secy. and General Mgr.

Texas Sheep and Goat Raisers Assn.—Ft. Stockton, Texas
Marsh Lea, President

Kansas Livestock Assn.—Topeka, Kans.
W. J. Brown, Pres., Will J. Miller, Exec. Secy. and Treas.

New Mexico Cattle Growers' Association—Albuquerque, N. Mex.

E. G. Hayward, Pres., Horace H. Henning, Secy.

Wyoming Stock Growers Association—Cheyenne, Wyo.

Chas. A. Myers, Pres., Russell Thorp, Secy. American Stock Yards Association

A. Z. Baker, Pres., C. B. Heinemann, Secy. National Association of Livestock Exchanges—E. St. Louis, Ill.

John Saunders, Pres., Henry Park, Secy. National Livestock Loss Prevention Board, Chicago

J. C. Cash, Pres., H. R. Smith, Gen. Mgr. American Veterinary Medical Association—Chicago, Ill.

Chas. W. Bower, Pres., John G. Hardenbergh, Executive Secy.

United States Live Stock Sanitary Assn.—Trenton, N. J.

J. M. Sutton, Pres., R. A. Hendershott, Secy. Treas.

National Assembly State Livestock Sanitary Officials—Chicago, Ill.

C. P. Bishop, Pres., C. C. Franks, Secy.—Treas.

*Secretary of Agriculture Claude R. Wickard; Under Secretary of Agriculture Grover B. Hill; Chief A. W. Miller, Bureau of Animal Industry, Agricultural Research Administration; Chief Harry E. Reed, Livestock and Meats Branch; Assistant Director of Finance Joseph C. Wheeler; Budget Officer W. A. Jump; Director of Personnel T. Roy Reid; Solicitor Robert H. Shields; Food Administrator Marvin Jones.

†Subcommittee of the Committee on Appropriations on H.R. 4443, United States Senate, Seventy-Eighth Congress, 2nd Session, Senator Richard B. Russell of Georgia, Chairman.

CHRONOLOGICAL DATA

1) In 1942, a special committee of the Executive Board of the AVMA was appointed by Chairman Brumley to study the problem of increased remuneration for Bureau veterinarians and to recommend appropriate action. The committee comprised W. A. Hagan, *chairman*, W. E. Cotton, and Ashe Lockhart.

2) In the fall of 1943, an item was included in the supplemental national defense bill for the purpose of reclassifying and upgrading the salaries of the federal veterinarians and their lay assistants for the remainder of the fiscal year of 1943-1944. Despite the strong testimony set forth in support of the measure, the item was rejected.

3) The budget for the fiscal year 1944-1945 also included the item totaling \$996,821, to cover the additional cost of reclassifying federal veterinarians and their lay assistants in accordance with the Classification Act of 1923. The House Subcommittee on Agricultural Appropriations, Congressman Malcolm C. Tarver of Georgia, *chairman*, began hearings on the proposal Feb. 7, 1944. Department officials presented ample testimony to substantiate the critical need for salary readjustments.

4) Feb. 10, 1944, the central office of the AVMA dispatched letters to resident and state secretaries, state livestock sanitary officials, and key individuals in every state urging support of the reclassification measure. A whole-hearted response to these letters was obtained.

5) March 3, 1944, at an open hearing of the House subcommittee, statements were presented by O. V. Brumley, chairman of the Executive Board and J. G. Hardenbergh, executive secretary of the AVMA, Congressman Gillie, and Will J. Miller, livestock commissioner of Kansas.

6) March 20, 1944, a letter prepared by Congressman Gillie and signed by 12 Congressmen was addressed to each member of the House. The letter invited attention to the merits and importance of the reclassification, and stressed the low pay received by this highly skilled and technically trained group of government employees.

7) March 16 and 23, Congressman Gillie presented the proposed reclassification in forceful addresses on the floor of the House

(*see, below*), setting forth the reasons why this correctional legislation should be enacted without delay.

8) March 23, 1944, the House subcommittee, heretofore mentioned, recommended disapproval of the reclassification and was sustained by a vote of 50 to 32 when an amendment to restore the item was introduced by Congressman Dirksen of Illinois. (Congressman Dirksen also made a strong plea for the measure when referred back to the House from the Senate, approved.) An interesting bit of parliamentary procedure was the no-quorum vote of 50 to 32. (But, when the House vote of 78 to 31 on June 19, 1944, restored the item to the bill, Congressman Malcolm C. Tarver, chairman of the House committee that had rejected the item, made the "no-quorum" point of order, whereupon a quorum was mobilized and passed the item 255 to 80.)

9) The question of reclassification received more genial and much more intelligent treatment in the Senate. The Senate Subcommittee of the Committee on Appropriations on H.R. 4443, Senator Richard B. Russell, chairman, (also of Georgia) unanimously recommended that the item be restored to the budget, and that action was sustained in the Senate without opposition.

10) On June 19, 1944, when the measure was referred back to the House, Congressman George W. Gillie of Indiana moved that the House recede and concur in the Senate's approval. After a heated debate, the motion was carried by a final vote of 255 to 80, as noted above. Tarver of Georgia protested the measure in rather uncomplimentary terms—almost venomous in fact—when he denounced the item as propaganda of union labor and of government employees paid over \$2,000 a year, while soldiers were fighting for \$50 a month. However, the economic and fair play sides of the question so ably stated by Congressman Dirksen of Illinois and others finally prevailed.

In bringing about this long postponed readjustment of remuneration and rating of federal veterinarians, and all that it signifies to the country as a whole, the veterinary profession acknowledges its debt to many prominent figures in the Congress and agricultural circles too numerous to mention here. For their keen insight into the practical side of American agriculture and our problems therein is evidence of the

kind of public relations that bear fruit. The profession is, therefore, deeply indebted to Senator Russell (Georgia) and his committee; Senator Millikin (Colorado); Congressmen Gillie (Indiana); Dirksen (Illinois); Mansfield (Montana); Lanham, West and Kleberg (Texas); Carlson and Hope (Kansas); O'Hara and Andresen (Minnesota); Rizley (Oklahoma); Barrett (Wyoming); Hill (Colorado); Stevenson (Wisconsin); Zimmerman (Missouri)—to signalize only those who presented arguments before the committees or House as distinguished from all of the members of the Senate and 255 in the House who supported the measure. Particularly conspicuous were the scholarly addresses on the floor of the House by Congressmen Dirksen of Illinois, Carlson of Kansas, and Gillie of Indiana, who showed that the health of farm animals, wholesome food and public health should not be wantonly sacrificed to save a few dollars.

To these names, among others, should be added Will J. Miller, Livestock Sanitary Commissioner of Kansas and executive secretary and treasurer of the Kansas Livestock Association; B. F. Davis, executive secretary of the Colorado Stockgrowers and Feeders Association; F. E. Mollin, secretary of the American National Livestock Association (Denver), Col. Charles I. Stengle, legislative representative of the American Federation of Government Employees, and Edward A. O'Neal, president of the Farm Bureau Federation.

DOCUMENTS OF RECORD

Below are a few selected documents which went into the records of the successful effort to raise the status of federal veterinarians. They are reprinted here not as the depiction of an AVMA achievement but, more particularly, to portray the *status quo* of veterinary service in public esteem as of this period.

ADDRESS OF CONGRESSMAN GILLIE¹

Mr. Chairman, the reclassification of doctors of veterinary medicine in the field services of the Bureau of Animal Industry and the Meat Inspection Division as authorized by the Classification Act of 1923 as amended has been completed and the War Food Administration and the Department of Agriculture have requested Congress to appropriate sufficient increases in

the appropriations for the prevention, control and eradication of animal diseases and for meat inspection for the payment of employees in these essential field services in accordance with the reclassification. These increases were requested after thorough study and consideration of the previous salary status of these services as compared with other groups in Government employ performing duties of like difficulty and responsibility and has the approval of the Civil Service Commission and the Director of the Budget.

The added compensation planned for these services would not give them a preferred position among federal employees. It would merely give to them the same opportunities for advancement in pay, corresponding to the performance of tasks, requiring special skill, that are afforded to others. As an example of this, I am informed that, although among other professional groups in the Department only 21.2 per cent are in the beginning grade, 61.5 per cent of the doctors of veterinary medicine are in this grade. Under the Classification Act of 1923 as amended, it is provided that employees should progress to the next grade, the regular "operating" grade, after satisfactory service in the beginning or "training grade." The proposal of the Department is to advance these employees in accordance with this principle. Because of a lack of funds to carry out the provisions of the Classifications Act, 299 doctors of veterinary medicine have been in the beginning grade from five to ten years; 82 have been in that grade from three to five years; and 150 have been in the beginning graded up to three years.

By way of contrast, I would like to call your attention to the status of attorneys in O. P. A., as revealed before the Subcommittee on Appropriations last year. Attorneys, like veterinarians, are subject to the provisions of the Classification Act respecting professional employees. I find that only 3.5 per cent of the 1,412 attorneys were in the beginning grade, and only 2.5 per cent in the next higher grade. Fully 96 per cent received \$3,200 or more per annum, whereas only 10 per cent of veterinarians receive that much. This contrast becomes more striking when one considers the many years of experience which the veterinarians have to their credit.

It is not as well known as it should be that continued vigilance by veterinarians is required to protect food animals against the ravages of infectious disease or that veterinary inspection of animals before slaughter, and of their carcasses after slaughter, provide the only means by which it can be determined whether meat for food is free from disease. You may not realize that the steady flow of cattle, hogs, and sheep to market is dependent upon the prevention of the spread and the eradication of animal diseases by veterinarians, and that the rate

¹Delivered on the floor of the House of Representatives, Congressional Record, 78th Congress, 2nd Session, March 16, 1944.

of kill by slaughterers in our meat-packing centers is strictly limited by the number of veterinarians furnished by the Meat Inspection Service to inspect food animals at the time slaughtered.

Animal-disease control and meat inspection require veterinary skill under the most trying and adverse conditions, with long hours of exacting work. The detection and determination of disease processes in herds of livestock or in animals presented for slaughter call for the application of specialized veterinary knowledge and sound veterinary judgment. The production and growth of millions of animals and the acceptance or rejection of billions of pounds of meat rest upon the decisions which must be made daily by the doctors of veterinary medicine. They must be ready at all times to back up their decisions with sound principles of veterinary medicine.

The livestock industry has never had a greater need for the services of veterinarians to enforce the quarantine laws and other laws passed for the prevention, eradication, and control of the diseases of farm animals. There are being sent to slaughter many more millions of food animals than ever before in our history. A large percentage of these animals must be slaughtered under federal inspection. Numerous federal purchasing agencies, such as the Army, Navy, and Lend-Lease are demanding more and more meat, all of which must be federally inspected. In addition, the demand by civilians for "U. S. Inspected and Passed" meats continues at a high level. The standards of inspection that have been developed during the past thirty-five years must be maintained. There is no such thing as halfway or limited veterinary inspection. The alternative to inspection by skilled veterinarians and well-trained assistants is no inspection at all.

No enterprise can long endure which fails to make provision for replacement of those who have devoted their lives to its service. Our veterinary colleges have for several years past discouraged their graduates from entering the federal service, mainly because of the meager opportunities for advancement. Surely the young men who have devoted five years of college study to acquire the degree of doctor of veterinary medicine do not look with favor upon the prospect of remaining as long as ten years in the beginner's grade. It is essential to the maintenance of these services that the better type of veterinary college graduates and lay assistants may be influenced to enter the federal services. They must some day replace the highly trained employees of today with long experience in these services.

These doctors of veterinary medicine and their lay assistants receive benefits under the overtime pay bill of last year. You should realize, however, that the overtime pay is pred-

icated on the regular or base pay of the employees. Here is a group of employees whose base pay is not on a par with others according to the provisions of the Classification Act provided by the Congress. They cannot have full enjoyment of the overtime provisions until their base pay is put on a level with other federal employees doing equal work. The proposed reclassification is designed to accomplish this.

Mr. Chairman, the amendment of the gentleman from Illinois is an important one, and I trust that it will pass and return the Bureau of Animal Industry to the high position it has held down through the years.

While it is not feasible to single out the work and testimony that carried the most weight, that of Livestock Commissioner Will J. Miller of Kansas is noteworthy. He spent many days in Washington and impressed his coworkers in behalf of livestock with the importance of the reclassification of federal veterinarians to the livestock industry. The following letter is his first effort on the records in support of the project.

LETTER OF COMMISSIONER MILLER
TO CONGRESSMAN TARVER²

In lieu of my inability to testify in person before your committee hearing Friday, March 3, 1944, due to travel conditions and shortness of time, following brief is respectfully submitted for your consideration:

I, Will J. Miller, executive secretary and treasurer of the Kansas Livestock Association, speaking for all branches of the livestock industry of the State of Kansas, and also the Livestock Sanitary Commissioner of Kansas, charged with the duties of livestock sanitation and disease control within the State of Kansas.

1) The BAI has rendered very meritorious service to the country since 1884, when it was created. It has eradicated contagious pleuropneumonia, Texas fever, and glanders from the country. It has freed the great plains states from cattle and sheep scab, and has reduced bovine tuberculosis tremendously. It has stamped out foot-and-mouth disease on at least seven occasions when it has appeared in this country. It has practically eliminated dourine in horses. It has prevented the introduction of surra and of rinderpest. It has stamped out one outbreak of fowlpest. It has reduced the incidence of Bang's disease of cattle. It has done much to encourage the breeding of better livestock and to find means of controlling the parasites and infectious diseases which make profitable livestock raising impossible.

For many years, it was charged with the maintenance of our system of federal meat in-

²Hon. Malcolm C. Tarver of Georgia, chairman of the House committee that rejected the measure.

spection, a system which is without doubt responsible for the safety and high quality of our meat supply.

2) The scientific personnel of the BAI consists largely of veterinarians, necessarily. By law, its chief must be a veterinarian. Its accomplishments, therefore, are largely those of veterinarians.

3) Based on the earning capacity of individuals in similar fields, the personnel of the BAI has always been underpaid. The situation has gradually become worse as time has gone on. At present, according to the testimony before the Agricultural Subcommittee of the Committee on Appropriations of the House of Representatives last November (1943), the group of veterinarians of the BAI "are the lowest paid, bar none" of any large group of professional employees of the Department of Agriculture. The testimony showed that of this group about 62 per cent were in the P-1 grade, the lowest civil service grade, whereas no other group in the Department contained more than 21 per cent. Many of these men have been in this grade for more than 10 years, some more than twenty years.

The P-1 grade is the beginners' grade (junior professional grade). It is the intent of the civil service law that men who have become experienced, and who have assumed greater responsibilities, shall be moved out of this grade to the higher ones, but this has not been done consistently for a great many years.

4) The poor prospects for advancement are well known to all veterinarians, to veterinary educators, and to veterinary students. As a result, the BAI for many years has been getting only the poorer men, or it has regularly lost the few better men that it has obtained.

5) During the last several years, nearly 500 veterinarians have been lost by the BAI. Many have gone into the armed forces but a far greater number have resigned to go into more lucrative work. The Bureau is now very short-handed and much work is held in abeyance, or is being done by men of inadequate training.

6) When the present war is over and a large number of veterinarians return to civil life, the Bureau will be able to obtain good men if the salary situation is corrected, or only the poorer ones if it is not.

7) If new life is to be injected into the Bureau it can be done only after the salary situation is corrected.

8) The reclassification measure calls only for funds to reclassify the present positions in the Bureau according to civil service rules—to pay for services according to the skill required and the responsibility entailed. Proper classification is inherent in the civil service system and generally in Government service professional personnel is properly classified. In the testimony already referred to, it was stated that

throughout the Department of Agriculture all groups of major size were properly classified except those of the BAI.

9) Proper classification of BAI employees, professional, subprofessional, and clerical will require slightly less than one million dollars, and this is the amount requested.

S/ WILL J. MILLER

March 3, 1944.

A representative of the National Association of Federal Veterinarians, whose members were most directly involved in the inequitable classification, filed the following statement against the existing discrimination:

The doctors of veterinary medicine and their assistants, for whose reclassification this committee has been requested to provide sufficient appropriations, are employed to carry out the policies of Congress as expressed in the Meat Inspection Law, the Quarantine Laws and other laws passed for the prevention, eradication and control of the diseases of food animals.

These laws are not new and the results which have flowed from them have amply proved the wisdom of Congress in enacting them. The benefits accruing directly to the livestock industry and indirectly to all consumers of meat from the suppression of foot-and-mouth disease, splenic fever and tuberculosis in cattle, scabies in sheep, and cholera in swine are well known. The demand for "U. S. Inspected and Passed" meats at home and abroad is convincing evidence of the faith of consumers of meat in the guaranty of wholesomeness of meats and products prepared under the system of inspection provided for by the Meat Inspection Act.

It is not so well known that federal inspection is founded upon the principle that whether meat is wholesome and fit for food can be determined only by postmortem inspection by veterinarians of the carcasses of animals at the time of slaughter, preceded by antemortem inspection by veterinarians of the live animals preliminary to slaughter. Probably the number is few of those who realize the continued vigilance required of veterinarians to protect food animals from the ravages of infectious diseases and thus make possible the steady flow of food animals to market. We surmise that the number is still less of those who realize how exacting are the duties of the doctors of veterinary medicine by whom and under whose direction and control meat inspection and the eradication and control of animal diseases is conducted.

Hogs are raised on two thirds of our farms and four fifths of our farms report having some cattle. Although many of these are dairy cattle, those found to be healthy are eventually

converted into meat. The dairy industry is an important source of calves for veal. Sheep and lambs are produced upon one tenth of our farms. Livestock producers and consumers of meat all look to Congress to continue in effect its established policies for the eradication and control of animal diseases and for the inspection of meat, and we submit that it is indispensable, if these policies are to be carried out, that sufficient appropriations be provided by Congress to attract and retain the services of a sufficient number of competent doctors of veterinary medicine and lay assistants to implement these policies.

Inspection of food animals and the inspection of meats is conducted in strict accordance with principles established by the veterinary profession. The standards which have been so set are high, but admit of no compromise. There is no such thing as half-way or limited veterinary inspection. The alternative to inspection by skilled veterinarians and well-trained assistants is no inspection at all.

The need for meats increases as the armed forces increase in numbers. The 1942 production of meat was 12 per cent over 1941 and the 1943 production about 11 per cent above 1942. The number of establishments operating under federal meat inspection increased about 25 per cent from June 30, 1942 to June 30, 1943. During the year ending Jan. 31, 1944, however, meat inspection suffered a net loss of 17 doctors of veterinary medicine, and during the nine months ending Dec. 31, 1943, there occurred a net reduction in the BAI of 76 doctors of veterinary medicine. Efforts to replace those losses by communicating with 47 veterinarians on the junior list, and by other means, failed.

This loss of doctors of veterinary medicine is not surprising in view of the fact that several of the schools of veterinary medicine have ad-

vised their graduating classes to accept employment as a federal veterinarian only as a last resort, because this service offers slight prospects of advancement, and we think we must all agree that without reclassification the outlook is not inviting for young men who have devoted five years of study to acquire the degree of doctor of veterinary medicine.

We are informed that the record shows 90 per cent of the doctors of veterinary medicine now employed are in grade 1 (P-1) (\$2,000 to \$2,600) and (2) (\$2,600 to \$3,200), while only 6½ per cent are in grade 3 (\$3,200 to \$3,800 and only 3½ per cent are in grades above 3. Of these, 299 have been in grade 1 from five to ten years, 82 have been in grade 1 from three to five years and 150 have been in grade 1 up to three years.

We suggest to you that the entrance salaries and the prospects for promotion are inadequate and do not offer fair compensation for the services rendered. Until this situation is remedied, the veterinary field services are bound to diminish. No enterprise can long endure which fails to make provisions for replacement of those who have devoted their lives to its service but must eventually retire with advancing years or for other causes, and we urge that this committee provide sufficient appropriations to finance the proposed reclassification to the end that the better type of veterinary college graduates and lay assistants may be influenced to enter and continue in this federal service, rather than to avoid it and engage in other fields of which many are now open to them.

Secretary of Agriculture Wickard and Food Administrator Jones filed the following tables with their briefs for the guidance of the Senate committee as to the need of additional compensation for the federal veterinarians and their lay assistants:

Existing Classification

	P-1 \$2,000-\$2,600	P-2 \$2,600-\$3,200	P-3 \$3,200-\$3,800	P-4 \$3,800-\$4,600	P-5,6,7,8 \$4,600-
	Per cent	Per cent	Per cent	Per cent	Per cent
Veterinarians	61.5	28.5	6.5	1.5	2.0
Other professional groups	21.2	35.0	22.0	10.0	11.8

Summary of Proposed Reclassifications

	NO. OF POSITIONS	PRESENT GRADE	MINIMUM SALARY	PROPOSED GRADE	MINIMUM SALARY	FULL YEAR CHANGES IN BASIC SALARIES
Veterinarians	555	P-1	\$2,000	P-2	\$2,600	\$199,700
	36	P-1	\$2,000	P-3	\$3,200	30,800
	6	P-2	\$2,600	P-1	\$2,000	2,000
	239	P-2	\$2,600	P-3	\$3,200	42,500
	49	P-2	\$2,600	P-4	\$3,800	42,200
	45	P-3	\$3,200	P-4	\$3,800	17,800
	40	P-4	\$3,800	P-5	\$4,600	30,200
	7	P-5	\$4,600	P-6	\$5,600	5,800
Total Veterinarians...	977					\$367,000

Years of Veterinary and Related Service in the Department

	NUMBER OF EM- PLOYEES	YEARS OF VETERINARY AND RELATED SERVICE IN THE DEPARTMENT								LESS THAN 5 YEARS	MORE THAN 5 YEARS
		0 to 3	3 to 5	5 to 10	10 to 15	15 to 20	20 to 30	30 to 40	OVER 40		
Veterinarians											
P-1	591	143	92	291	51	5	7	2		235	357
P-2	294	20	16	21	31	41	139	23	3	36	258
P-3	45			1	1	5	24	12	2		45
P-4	40			2	6	5	17	7	3		40
P-5	7					2	3	2			7
Total Veterinarians	977	163	108	315	89	58	190	46	8	271	706
Per cent	100	16.7	11.1	32.3	9.1	5.9	19.4	4.7	0.9	27.8	72.2

While the task of upgrading the federal veterinarians (for reasons already stated) has been a prime objective of the AVMA, the hearty collaboration of other societies is gratefully acknowledged. Among these are the livestock associations mentioned above, the National Association of Federal Veterinarians, the National Assembly of Chief Livestock Officials, the United States Live Stock Sanitary Association, and the constituent state associations which form the "community of interests" to whom the American people entrust their livestock industry. While President Charles W. Bower, President-Elect James Farquharson, Executive Board Chairman O. V. Brumley, and Executive Secretary John G. Hardenbergh were tireless in their efforts to guide the measure through the Congress, there is no space here to publish the testimony they provided in its support. The statement of Dean Brumley expresses in general the thoughts of the veterinary profession on the importance of the achievement:

STATEMENT OF DEAN BRUMLEY²

The Bureau of Animal Industry was founded in 1884. It was quite obvious that something had to be done to protect the livestock industry and help maintain an adequate food supply for the civilian population. Diseases were beginning to take an enormous toll of all species of livestock. Furthermore, it was a question of having our livestock and their products accepted for export to foreign countries. Because

of disease conditions in this country, embargoes were being placed on animals and animal products from the United States; consequently, it became necessary to establish some agency to protect the citizens of the United States, the livestock industry, and the expanding markets to other countries.

Thus, there has grown up in this country over a period of sixty years, a service which has made possible the development of the greatest livestock industry in the world. No one can visualize a successful and healthful nation without an adequate food supply and much of our success is due directly to an animal husbandry development second to none. The control of infectious and contagious diseases by the Bureau of Animal Industry has been the primary factor in this highly successful livestock industry.

During the past sixty years, many infectious and contagious diseases of livestock have been placed under control. In many such instances, the whole industry has been threatened with destructive plagues. Let us consider a few of the many instances in which the Bureau of Animal Industry has functioned efficiently to control such plagues. Tick fever, beginning in the southern states, extended as far north as Wisconsin; in the heavily infected southern states, it reached a point where it became almost impossible to successfully raise cattle. However, it was discovered that this tick fever could be controlled and this was done through the efficient efforts of the Bureau of Animal Industry. This made possible the development of the cattle industry in the South where it has become increasingly important.

Similar outstanding achievements have been made by the Bureau of Animal Industry in such diseases as glanders and dourine of horses; in freeing the great plains states from cattle and sheep scab; and in keeping out foreign plagues of livestock and poultry. A more

²Presented before the Subcommittee on Agricultural Appropriations by Dr. O. V. Brumley, Dean, College of Veterinary Medicine, Ohio State University, and Chairman of the Executive Board of the American Veterinary Medical Association.

recent outstanding accomplishment is the almost complete eradication of bovine tuberculosis, a threat not only to the cattle industry but also the public health. In a little more than twenty-five years, beginning in 1917, the incidence of bovine tuberculosis has been reduced almost to the vanishing point. In the same period, it is interesting to note that human mortality from tuberculosis has been reduced from 125 per 100,000 deaths to less than 40 per 100,000; part of this reduction is directly creditable to elimination of the bovine type of infection in man.

The Bureau of Animal Industry was in complete control of the bovine tuberculosis eradication program, in cooperation with the various states. This is a fine example of the efficient services rendered the livestock industry and public health by the Bureau.

Foot-and-mouth disease, which has made its appearance in this country on at least seven occasions, was promptly attacked each time and not allowed to gain a permanent foothold as it has in many foreign countries and where it continues to take a tremendous toll each year. The vigilance and prompt action of the Bureau of Animal Industry is responsible for our successful handling of this disease. Foot-and-mouth disease is still a constant menace because of its prevalence in many countries today, and nothing should be permitted to weaken the Bureau's efficiency in safeguarding our livestock industry against the disease.

Many other examples could be cited in which the Bureau of Animal Industry has functioned with equal efficiency. This record of accomplishment was made possible through the efforts of veterinarians of great ability who came into the service in the early days because of the promise of an attractive professional career with remuneration comparable to other fields of veterinary activity and other professions. In more recent years, the Bureau has failed to attract the caliber and number of graduate veterinarians needed to maintain the services on the high level expected of such an important government agency.

The functions of the Bureau of Animal Industry still require well-educated and well-trained veterinarians. The Bureau is not only looked to for leadership in animal disease control by the veterinary profession at large but also by the livestock and poultry industries which it serves. However, separations from the Bureau in recent years and failure to attract the caliber of men needed have become of great concern. Prior to the beginning of the present war, there were approximately 2,300 to 2,500 veterinarians in Bureau service. Since then this number has been reduced by at least 500. Some of these have been called to military service but the majority have left because of retirements and resignations to

accept positions offering better compensation. This is a serious situation, particularly at this time when demands for efficient production of livestock and poultry depend to a considerable extent upon protecting them from ravages of disease.

The only way in which these losses of personnel can be replaced is by attracting into government service young, well-trained veterinary graduates. Under existing classifications, no veterinary educator can justifiably recommend entering the government service when there are so many other more remunerative services and positions available. Thirty and more years ago, government service was looked upon as a promising career, but this is no longer true. We may expect further depletion of government veterinary service unless promotional opportunities are presented.

During the past several years in my own experience as dean of an accredited veterinary college, only those graduates who were in the lower scholastic brackets of their classes were interested in accepting civil service appointments in the Bureau of Animal Industry. If this condition continues, it can only lead to a decimation in numbers and a lowered efficiency of the personnel needed to carry on the important functions of the Bureau.

At this point I would call attention to the fact that it requires from five to six years to become educated and trained in veterinary medicine, which is comparable to that required of graduates in human medicine. This means, in addition, a capital investment of at least \$3,000 at a most important time in a young man's life. In view of these facts, it becomes more evident that government service must offer proper remuneration and promotional opportunity if it is to attract qualified individuals.

At the present time, this is not the case. It is known that veterinarians are now the lowest paid, and lowest classified, large professional group in the Department of Agriculture. If the livestock and poultry industry of this country are to prosper and produce the foods needed for a well-nourished population and for export, they must be afforded the continued and effective protection which has enabled them to make their present high state of development. A number of serious diseases of livestock and poultry still remain to be solved and the livestock and poultry industries look to the Bureau of Animal Industry to furnish the necessary leadership. Furthermore, a continuation and expansion of the Meat Inspection Service is demanded for the best interests of public health.

Therefore, favorable consideration of the reclassification and upgrading of veterinarians as provided in the budget estimates is strongly urged.

S/O. V. BRUMLEY

(Concluded on next page)

The favorable outcome of the request made to the Seventy-Eighth Congress to classify the federal veterinarians at the same level as other groups of equal educational requirements emerged from planned and energetic coöperation and collaboration: coöperation within the veterinary profession and its collaboration with the livestock industry, where the value of classical veterinary science is most appreciated. Finally, lest posterity forget, the outcome may be regarded as a "vote of confidence" by the Senate and House of Representatives in a distinguished veterinarian—the Hon. George W. Gillie.

"Autogenous Vaccine" Misused

According to an opinion rendered by Attorney General Robert W. Kenny of California to the department of public health of that state, the term "autogenous vaccine" used in the Health and Safety Code applies only to a vaccine that is re-injected into the particular individual from which the bacterial specimen was taken. It could not be, therefore, legally applied to a vaccine used on animals of a herd other than the one from which such a vaccine was derived. Quoting: "Vaccines taken from one animal in a herd and injected into other animals in the herd suffering from the same condition may not be labeled 'autogenous vaccines.'" One may, therefore, interpret the opinion rendered as an example of a widespread misuse of a term in veterinary medicine. We are indebted to Dr. C. U. Duckworth, chief, Bureau of Dairy Control, California Department of Agriculture, for a copy of the attorney general's complete analysis of the point of law involved.

Extension of Meat Inspection Service

A War Food Administration order which became effective on April 1, 1944, imposes a modified form of federal meat inspection on all uninspected packers who slaughter 52 or more head of Army style beef cattle each week. These packers will be required to set aside for government purchase at least 50 per cent of their production of choice, good, commercial, and utility grade steer and heifer beef meeting the provi-

sions of Army specifications. Packers affected by this order must qualify for federal inspection, as all meat purchased for the armed forces must originate in federally inspected plants. Through an agreement between the War Food Administration and the War Department, the Army Veterinary Corps will render assistance in providing inspection in these plants.—*Bull. U. S. Army M. Dept., May, 1944.*

Inside the Axis

According to an article* in *Deutsche Tierärztliche Wochenschrift*, Poland is getting "repatriated" with the aid of veterinary science. It announces that in the Warthe region of former Poland, 486 herds were found to contain an increase of brucellosis-infected animals over the incidence at the time of "repatriation." The increase is blamed on the "intense movement of animals since the beginning of the war in the East." The author speaks of taking steps to protect animals "in behalf of the repatriated and new settlers."

From the Balkans comes a printed "Special Order" of the German High Command giving 21 specified directions for the killing of hostages: Make them dig their own graves (ditches) and then kneel with heads overlapping, remove all identification, shoot from behind and finish off any signs of life with pistols if necessary. Destroy all evidence of time and place, and send all records to Germany. To appease the conscience of the murder squad, alternate muskets are loaded with blanks.

Journal of Genevre (Swiss) reports (as a compliment) that German soldiers returning from the eastern front no longer show the usual courtesy to their superiors, obviously "fed up" with the inhuman brutality of their officers. They are called the "red ribbon boys."

Tass Agency (Russia) found a document of the German High Command notifying the families of officers who commit suicide that their allowances will be cut off if suicides among officers do not decrease, forthwith.

From the Office of War Information.

*Schoop, G.: Die Brucellose der Rinder in Wartheland. *Deutsche Tierärztl. Wchschr.* 59, (1942): 323. Reference received from the Veterinary Science Division, University of California.

Dairy Cows Killed by Lightning

On the morning of June 19, 1944, a severe electrical storm passed over the Beltsville Research Center at Beltsville, Md. An hour or so later an employee found nine dead cows, and two that were injured, under an oak tree that stood alone in the pas-

buried can be led to the side of the grave and shot so they will topple into it. If shot to the right of the middle of the forehead they will fall to the left, or if shot to the left of the middle of the forehead they will fall to the right.



ture. The tree had numerous limbs and heavy foliage.

The accompanying photograph showing the cows lying as they fell, was taken approximately four hours after the cows were struck. Dr. Paul Underwood, veterinarian of the Bureau of Dairy Industry, examined the animals and found no marks or burns. Neither was there a mark on the tree. Dr. Underwood remarked that the cows appeared to have fallen like a row of dominoes, one falling against the next one. All but two of the dead cows fell on the right side with their heads to the right. Dr. Underwood thinks they may have fallen to the right because the main shock came from the trunk of the tree, hitting the left side of the brain. It is an established fact that animals which are to be slaughtered and

The cow shown standing was also down when the animals were found, but shortly after receiving treatment she began chewing her cud. Later, she walked to the barn, but her gait was rather unsteady. Two days after the shock, she was eating normally and may make a full recovery, but bureau dairymen are concerned as to whether the calf she is carrying has suffered any ill effects.

The cow in the background to the left of the standing cow was also alive when found and had struggled to her feet. There appeared no chance for her recovery and she was killed.

Other cows in the pasture may have been on the outer fringe of this group and received some effect of the shock, but there is no evidence of injury in any of them.—
Leo S. Richardson, Bureau of Dairy In-

dustry, Beltsville Research Center, USDA, Beltsville, Md.

[Several years ago, 59 2-year-old heifers and 2 bulls belonging to the Walker-Gordon Laboratory Co., Inc., Plainsboro, N. J., were killed by a stroke of lightning on a farm near West Chester, Pa. The circumstances were almost identical with those described above. The animals were huddled under two large adjacent oak trees during an electrical storm and there was no sign of the lightning bolt on either tree.—EDITOR.]

Penicillin Discovery

The bacteriostatic action of the mold *Penicillium notatum* was accidentally discovered by Dr. Alexander Fleming, professor of bacteriology at St. Mary's Hospital Medical School, University of London, in 1928 when a spore of the mold which contaminated a culture of *Staphylococcus aureus* in a Petri dish was seen to inhibit the growth of that organism. Fleming remarked that the observation might prove to be of clinical value if it could be produced on a large enough scale, and he urged in a published article in 1932 that clinical tests be made. This was done by Dr. H. W. Florey of Oxford in 1939 in the hope that the mold might have possibilities as a wartime drug. Dr. Florey was given a Rockefeller grant of \$5,000 in 1939, and another of the same amount in 1941, to carry out the research. Dr. Florey's associate, Dr. N. C. Heatley, visited the United States in July, 1941, and made their findings available to American workers of the Office of Scientific Research and Development. During the following two and a half years, production remained in the laboratory stage. What followed is common knowledge.—*From the Scientific Monthly, June, 1944.*

Law of Diminishing Returns

An article beneath this title in *Science* (Apr. 7) is a thesis on the applicability of that law to telescopes, astronomy, and other things, but first introduces the subject by citing agriculture as an example. The farmer who increases capital and labor in the operation of his land will get a lower proportionate increase of income. It is a

good law to keep in mind through life. The busy veterinarian who builds a fine hospital over on the boulevard or trades the rattling jalopy for a *de luxe* sedan is apt to find himself entrapped in the law of diminishing returns. Or, the one who moves to a larger apartment or erects a palatial home, lawn, picket fence, rock garden, and everything may find the former ratio of expense to income off balance. In short, as the author of the above named article implies, better not forget "The law of diminishing returns." The new putter seldom improves the score very much.

The Veterinarian's Pharmacy

Speaking of the veterinarian's pharmacy, I do not think it would ever have been profitable to myself or clients to dispense with that part of my outfit. The local druggist, used to nothing bigger than four- and eight-ounce bottles wasn't keen about filling quarts and gallons at prices the farmers were able to pay for a sick animal. Here in town, I once wrote a prescription for a quart of white lotion that was filled and refilled for the next ten years, not only for the original customer but for the whole community. But, the chief reason I run a pharmacy along with my practice is to have what I need within reach at home or farm. The only difference I see in nearly fifty years of practice is that crude drugs have been replaced by modern preparations.—*Old Timer.*

ANOTHER WRITES:

It would not be feasible to do without a well-stocked pharmacy in veterinary practice and a portable one in the automobile is the very life of a veterinarian's work. Although not a practitioner, I work with practitioners constantly and have noticed the practicability of keeping an orderly stock of drugs and biologic products in the back of an automobile and I have also seen the excellent service they give at the office at a great saving when the farmer or his wife comes in for drugs recommended over the telephone.—*B.A.I. field man.*

Cadeac, a onetime famous French veterinarian and author, remarked: "If you wait until you have had experience you will never do anything."

The Advancement of Veterinary Medicine Through Motion Pictures

ARTHUR G. BOYD, D.V.M.

Sacramento, California

A NEW FIELD for the advancement of veterinary medicine is now ripe for acceptance and effective use by organized members of the profession. Visual education of the student, the veterinarian, and the public, through means of motion pictures, is not only timely but is a practical and economical means of presenting many subjects heretofore unavailable or neglected.

Interestingly, the eye knows but one language—a common tongue—through which motion pictures could serve to bring about a better understanding not only of the problems of the veterinarian but of mankind in general.

While the motion picture is not new, until recent years its use has been confined mostly to the professional operator. Simplification and improvement of equipment and methods, together with the more economical production of material, have made it possible for the amateur to enter this field. The general popularity of this type of photography is evidenced by the ever increasing sale and use of motion picture material. In common with many others, those items used in producing motion pictures have been temporarily curtailed by war. However, it is believed that after the cessation of hostilities, motion pictures other than those used purely for entertainment will become increasingly popular.

A few veterinarians have made "movies" as a hobby, and judging from the fine reception many of these pictures have received, it is evident they have done a good job. With the exception of large scale interior photography and certain sound work, which require special lighting and other equipment, most of the requirements for veterinary subjects can be met with materials available to the amateur.

As a result of a recent survey, it was

interesting to learn that out of a total of 57 California veterinarians questioned, 16 had motion picture cameras.

There is little doubt that within a reasonable time, existing motion pictures could be augmented by many new subjects within the sphere of veterinary medicine; provided a coordinated plan could be worked out which would include the use of existing equipment available to the profession.

The demand for motion pictures for use by the student, the practitioner, and the public is great, and it is believed this opportunity for the dissemination of properly edited material relating to veterinary medicine should be overlooked no longer.

THE STUDENT

For some time, educational institutions have been giving visual aids a prominent place in their curricula and a large number of these institutions now maintain libraries of motion pictures as an essential part of the teaching programs. Numerous cities maintain visual educational departments, the nucleus of which is the motion picture. As an illustration of the extent to which this field has developed—in my own city of Sacramento, California, having a population of 106,000, every school is equipped with a 16 mm. motion picture projector. The school department has approximately 800 motion picture films which are available to the various schools.

The present interest in the use of motion pictures by schools of veterinary medicine varies considerably, and the extent of their use is apparently determined by the degree of interest on the part of individual faculty members or students in this type of photography as a hobby.

It is unfortunate, however, that there has not been a more general acceptance of this key to quicker and more thorough learning to amplify classroom teaching. Visual material is intended to facilitate teaching and

Assistant Administrator, Division of Animal Industry, California State Department of Agriculture, Sacramento.

Dr. Boyd is chairman of the Special Committee on Motion Picture Library of the AVMA.

definitely is not a substitute for the classroom teacher.

One can readily appreciate the ease with which symptoms of disease and surgical techniques can be demonstrated through motion pictures. The use of slow-motion and time-elapse pictures in illustrating some subjects would undoubtedly be of great help to the student. Few schools are so fortunately located that it is possible to demonstrate to the student, within reasonable distance and with any degree of variety, the various problems involved in some subjects, as for example meat inspection and dairy sanitation.

Even the best of clinics maintained for student instruction cannot include cases typical of the many diseases that confront the graduate in the field. For instance, some schools are located in districts where such diseases as anthrax are practically never observed, yet, the graduate may find himself right in the midst of an outbreak, should he locate in an area where this disease is indigenous. The list of diseases which could be used is large.

Some schools are using motion pictures in a varying degree, but even with this limited use it is already evident there has been some duplication of expense and effort in making pictures on a common subject. A centrally located library of motion pictures on veterinary subjects not only would eliminate this but, no doubt, would lead to the production of higher class pictures covering a larger number of subjects.

The professions of human medicine and dentistry, realize the merits of motion pictures; consequently national, as well as several local organizations, now maintain libraries for both professional use and public relations.

The armed forces have been quick to appreciate the rôle of motion pictures in training soldiers and sailors, and rather large libraries of films are maintained at training centers.

The Army Veterinary Corps utilizes motion pictures in connection with special courses on instruction given veterinary officers and veterinary enlisted technicians.

The Navy states it has been able, in fifteen minutes, to show by motion picture what it would otherwise take two hours to present. This time-saving factor should be worthy of consideration in the teaching of veterinary medicine where the various

fields to be covered are so numerous and the time so limited.

THE VETERINARIAN

How often have you wanted to see the details of a certain surgical operation at the clinic only to find that if you were not one of a chosen few to occupy a front seat or to assist the surgeons, you might as well have been at home. If you were fortunate enough to occupy a ring-side seat, you still had to contend with many distracting features. While it is not advocated that the clinic be disposed of as such, nevertheless, with the results obtained in covering the field by the motion picture little is left to be desired. With the lens substituting for your eye at the operation and with little or no distracting features, you are right on top of the operative field. Some have gone so far as to state "it is even better than the real thing."

Perhaps you have yearned to visit the clinics of some foreign country and see some outstanding surgery, and while you were dreaming your instincts take you for a look at your fellow practitioner in his corner of the world to observe his methods of handling a case of "this, that, or the other." Again we usually find our wishes and dreams don't come true and we are denied such privileges. Well then—are we to give up when we can do all this and more too and get to see more at the right time through the medium of the motion picture? It would be of inestimable value if veterinarians, both private practitioners and civil servants, could review from time to time motion pictures of animals exhibiting the various symptoms of such diseases as foot-and-mouth disease, contagious pleuropneumonia, rinderpest, etc. How many American veterinarians would readily recognize these? Yet these are some of the most devastating diseases of livestock.

It is true we have listened to lecturers describe the symptoms; we have read the text-book descriptions, and some of us actually have seen cases. Lacking this latter opportunity, however, how much better it would be for most veterinarians if they could see motion pictures of affected animals. It would leave a much more lasting impression than could otherwise be gained with the probable exception of the "real thing."

Under present conditions, we must recog-

nize the danger of such foreign diseases gaining entry to our shores in spite of the precautionary measures now in effect. The use of motion pictures could assist materially in their early recognition.

Motion pictures can be used to great advantage in the training of graduate personnel in several fields. As an illustration, the California Division of Animal Industry has used motion pictures for several years for in-service training of veterinarians engaged in field- and meat-inspection work. We also have found motion pictures of inestimable value in bringing to the attention of veterinary practitioners the symptoms of many diseases new and old.

Motion pictures also have much historical value. Shall we permit the technique of the veterinary genius to pass into oblivion with his death, when practical means are available to preserve it for posterity?

Contacts with national and local associations of veterinarians indicate motion pictures are well liked for use at conferences, and that they are being used increasingly as an important part of programs. It is reasonable to believe that this interest and demand will increase as time goes on.

THE PUBLIC

It should be kept in mind that no one will tell the public the full story of the veterinarian unless the veterinarian leads the way. The medical and dental professions have not overlooked this field of desirable public education. Included in their programs of public relations, they maintain certain films for lay groups.

Modern experience has shown that a story can be put across to public groups through the use of the motion picture which otherwise might never gain access to such audiences. Motion pictures, however educational, can be entertaining if properly presented.

Audiences frequently become bored and lose interest in speeches. Usually, it requires a good speaker to hold the attention of the average audience long enough to put over a story such as relates to the work and achievements of the veterinarian. Here the motion picture seems to fill a real need.

Included in such a project could be the part the veterinarian plays in the control

of diseases such as rabies, hog cholera, encephalomyelitis, brucellosis, fowl pox, etc. Other equally important services of the veterinarian may readily be brought to the attention of the public. In fact, one might go down the line and enumerate practically the entire list of veterinary achievements and find they all could readily be adapted to motion pictures for the purpose of more thoroughly enlightening various lay groups.

In the work of the California State Division of Animal Industry, we have been greatly impressed by the favorable reaction of the public to motion pictures illustrating some of the activities of veterinarians such as meat inspection, tuberculosis eradication, and pullorum disease control.

During recent years, the motion pictures taken by this Division have been shown to many thousands and we continue to receive more requests than we can fill. The army and navy have used our motion pictures both for lay and professional groups. We have been able to present such material to large numbers of students in high schools, junior colleges, and universities, as well as to service clubs, health officers, and legislators.

I wish to reemphasize the urgent need for the establishment of a central clearing house for motion pictures on veterinary subjects for use by colleges, veterinary associations, and public organizations.

A program should be formulated that would include a review committee comprised of representatives of various phases of veterinary medicine. It is believed many new pictures could be procured on desirable subjects through practitioners and schools of veterinary medicine working in harmony with a coordinated program.

It is gratifying to know that the American Veterinary Medical Association is taking an interest in motion pictures and, at the last convention, appointed a special committee to obtain information on establishing and maintaining a library. The committee, of which the writer has the honor to serve as chairman, is accumulating data for its report to the Association.

A heavy fleece and a low rate of hematosis account for the ability of certain animals (alpacas, llamas) to live in high altitudes.

Equine Encephalomyelitis in the United States in 1943

INFECTIONOUS equine encephalomyelitis was less prevalent in 1943 than in any year since 1936. Only 4,768 cases in 34 states were reported. Figure 1 shows where the

disease occurred during the so-called pre-epizootic, epizootic, and post-epizootic periods of the year. The 1942 maps showed only about 60 per cent of the cases reported,



Fig. 1—Pre-Epizootic Period. Cases reported for January, 4; February, 13; March, 22; April, 62; May, 143; Total, 244.

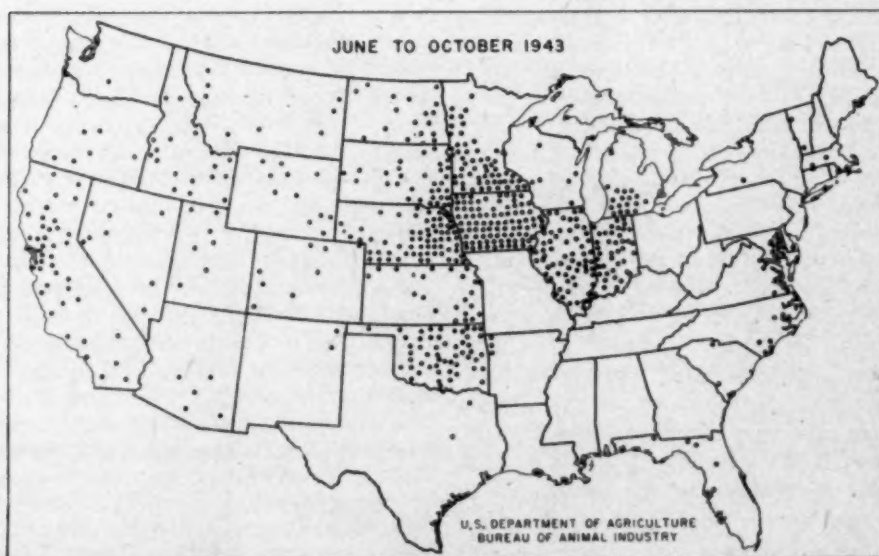


Fig. 2—Epizootic Period. Cases reported for June, 397; July, 723; August, 1,386; September, 1,173; October, 320; Total, 3,999.

owing to lack of exact information as to time of occurrence. More than 90 per cent of the 1943 cases were classifiable according to time of occurrence, showing considerable improvement in methods of reporting. Figure 2 shows the degree of incidence of the disease by counties.

Determination of the immunologic types of virus is not receiving the attention it merits. Comparatively few virus isolations were made during the year and no new foci of the eastern virus (see report for 1942) were discovered in 1943, according to reports. However, the continued high



Fig. 3—Post-Epizootic Period. Cases reported for November, 86; December, 0; Total, 86.

It is estimated, from all available records, that about 600,000 horses and mules were vaccinated in 1943. Reports of 2-dose vaccination of 206,267 animals were received. Among 182,162 animals so vaccinated in counties where the disease occurred, 37 cases and 16 deaths were reported, exclusive of cases and deaths occurring in lay-vaccinated animals for which accurate reports were not available. From these figures, the rate of incidence in vaccinated animals is calculated to be 0.2 per thousand, as compared with an incidence of 1.1 per thousand in unvaccinated animals. Vaccination appears to be more effective when the horses are vaccinated before the first case occurs in the area than when they are vaccinated after the disease appears. Among 53,148 animals vaccinated before appearance of the disease, there were only 5 cases, an incidence of approximately 0.09 per thousand. Of 129,014 vaccinated after cases occurred, 32 animals developed the disease. The incidence in the latter group was nearly three times greater or 0.25 per thousand.

mortality in some areas where virus was not typed suggests the more virulent eastern type of infection. It is worthy of note that in 1943 two cases, diagnosed clinically as infectious equine encephalomyelitis, yielded rabies virus. One such case, reported by Dr. L. M. Hurt, occurred in California; another, investigated by the Bureau, occurred in Arizona.—A. W. Miller, Chief, Bureau of Animal Industry, U. S. Department of Agriculture.

Synthetic Meat

A food made from the yeast plant *Torula utilis*, said to be rich in vitamin B and to contain twice as much protein as meat, is in full production in England. It contains important amino acids lacking in cereals. Food yeast is a nutritious, tasty, brownish material made up in powder or tablets for mixing with other food, a supplement rather than a staple. It is a strain of the *T. utilis* species manufactured from molasses and ammonia.

The Causes of Outbreaks of Bovine Coccidiosis

DONALD C. BOUGHTON, Ph.D.

Auburn, Alabama

A NUMBER of more or less recent reports have emphasized the fact that many healthy cattle harbor coccidia.^{1, 2, 3} On the other hand, the world's veterinary literature contains numerous accounts of outbreaks of clinical coccidiosis in dairy and feeder calves.

The carrier state and clinical infection obviously represent two different sorts of relationship between coccidia and their hosts. In the case of bovine coccidiosis, how can one account for both almost universal infection of healthy animals and sporadic outbreaks of clinical cases? Is there a logical relationship? What interpretations can be put upon the presence of coccidial oöcysts in the feces of sick and of healthy cattle, respectively?

At the present time, there are two hypotheses which have been advanced to explain the occurrence of outbreaks of clinical coccidiosis in cattle. For the sake of convenience, these hypotheses may be designated (1) the concentration hypothesis and (2) the exacerbation hypothesis.

THE CONCENTRATION HYPOTHESIS

Overcrowding of susceptible hosts is usually considered the precipitating factor in outbreaks of coccidiosis. The concentration of infective oöcysts under such conditions is assumed to reach a point at which exposure results in clinical infection. The following points, numbered to correspond with the parallel points to be discussed under the exacerbation hypothesis, summarize the argument for the concentration hypothesis.

1) Carriers of bovine coccidia, which are normally present in the herd, serve as an ultimate (rather than an immediate) source of clinical coccidiosis.

2) Sporulated oöcysts are ingested two to six

weeks prior to the appearance of clinical symptoms.

3) The number of infective oöcysts ingested is the chief factor determining the severity of infection.

4) Clinical coccidiosis is the result of a self-limited, massive reproduction of relatively large numbers of coccidia, which are acquired by the ingestion of bits of dung from cattle with subclinical or clinical infections, that produce much heavier oöcyst discharges than the low grade infections of carriers.

The nature of infection in carriers is of particular significance in relation to the points just listed. The writer's observations on dairy cattle in the southeastern states lead to the conclusion that the oöcyst discharge usually observed in carriers represents repeated infection with various species of coccidia. The evidence for this conclusion is as follows:

a) Following experimental inoculation, the oöcysts of a given species appeared promptly and in relatively large numbers at the end of a prepatent period of a definite length.

b) The great proportion of the oöcyst discharge of a given species in experimental infections, established by a single inoculation, took place within a short period (usually two to six days) immediately following the first appearance of the oöcysts in question.

c) If precautions were taken to prevent the ingestion of infective material following a single experimental inoculation, the massive oöcyst discharge mentioned above was followed by a period of a few days in which relatively much smaller numbers of oöcysts could be demonstrated. Following this period, oöcysts could no longer be recovered by routine flotation techniques.

d) When the experimental feeding of infective oöcysts was extended over a period of three to five days, both the period of massive oöcyst discharge and the period of subsequent lower output were longer than when the infection was established by an equal number of infective oöcysts given as a single inoculation.

e) The severity of an experimental infection with a given species of coccidia was on the whole directly proportional to the number of infective oöcysts fed.

f) Calves were experimentally infected three or more times with the same species.

From the Regional Animal Disease Research Laboratory, Auburn, Alabama, Bureau of Animal Industry, Agricultural Research Administration, U. S. Department of Agriculture.

Since the preparation of this paper, the author has been transferred to the Zoölogical Division, Beltsville Research Center, Beltsville, Md.

g) Naturally-acquired infections of calves in dairies in Alabama, which were followed by frequent fecal examination over periods of several months, were characterized by a series of discharges of oöcysts involving a variety of coccidial species; most of the species appeared in the feces of each calf on more than one separate occasion.

h) In such infections, the species involved in, the time of appearance of, and the size of the oöcyst discharges appeared to bear direct relationship to the species, period of availability, and numbers, respectively, of infective oöcysts to which the calves were exposed.

Direct evidence that clinical coccidiosis can be produced in well-fed calves and yearlings both by artificial inoculation with large numbers of sporulated oöcysts and by exposure to heavily contaminated bedding has been presented elsewhere.^{4, 5, 7}

THE EXACERBATION HYPOTHESIS

In 1938, Marsh² proposed an interesting hypothesis relative to winter outbreaks of coccidiosis in feeder cattle in Montana. The hypothesis purports to make it "unnecessary to account for the disease by connecting the outbreak with a particular source of infection in the environment of cattle." The following are the chief points of Marsh's argument:

1) Coccidia were demonstrated in, and may be considered as normal inhabitants of healthy cattle in the northwestern states.

2) Conditions under which outbreaks occur are "unfavorable to the sporulation of the oöcysts which are discharged by the carriers."

3) Severe winter weather coupled with change in feed, particularly from wild grasses to alfalfa, renders the intestinal epithelium more susceptible to coccidia.

4) "Clinical coccidiosis is the result of lowered resistance to the invasion of a parasite normally present in the intestines of cattle."

Since the flare-up of a previously latent coccidial infection—a phenomenon which has not been reported by other workers—is a fundamental assumption of Marsh's hypothesis and, if it does occur in fact, would have great practical importance and theoretical interest, it is pertinent to examine the points of the argument in some detail.

1) Marsh's demonstration, by mean of a refined concentration technique, that healthy carriers are common among beef cattle in the northwestern states is a contribution to the study of bovine coccidiosis. This finding is in

agreement with previous and subsequent observations of a number of workers in other regions. The account of the "persistence of coccidia in the intestinal tracts of calves from a herd in which there had been losses from coccidiosis," however, is open to question. It contains no reference to possible reinfection during the seven-month period of observation; the implication is that the oöcysts passed by these calves from February to September were directly related to the original infections first seen in February. As previously pointed out, the writer's observations would indicate that such an oöcyst discharge would be the result of repeated infection.

2) The fact that subzero temperatures are unfavorable to the sporulation of oöcysts is not in itself proof that sporulation does not occur in feedlots in Montana. Neither is it proof that sporulated oöcysts are not available to cattle two to six weeks prior to the clinical outbreaks of coccidiosis. Marsh records no observations designed to determine whether or not sporulation of the oöcysts takes place in the feedlots. Such information would be particularly significant since the necessity for setting forth an hypothesis such as Marsh proposes appears to rest upon the assumption that the extracorporeal phase of the cycle cannot be completed.

3) Marsh presented no experimental evidence in support of his view that bad weather and certain changes in diet might increase the susceptibility of the bovine intestinal epithelium to coccidia. Although drastic changes in metabolic activity resulting in lowered vitality have been associated with decrease in resistance to certain types of infections, the nature of the reaction between intestinal epithelium and coccidia is not well understood at the present time. It is difficult, therefore, to visualize the mechanism by which cold weather and alfalfa could affect epithelial resistance to sporozoan parasites.

4) Even if it should be proved that external factors lower the resistance to coccidia, the basic question at hand remains unanswered, namely: Are the small numbers of coccidia present in the carrier, the susceptibility of which has thus been increased, able to produce a clinical infection?

Clinical coccidiosis, no matter what its origin, is produced only by the presence of relatively large numbers of coccidia within the intestinal tissues of the host, the large population of coccidia being attained ordinarily by an asexual multiplication of the parasites. According to available information, such massive asexual reproduction of coccidia is invariably (precluding the early death of the host) termi-

nated by oöcyst production, following a relatively small, and presumably predetermined, number of generations. It follows, therefore, that the population of coccidia actually developed prior to oöcyst elimination, and hence the severity of infection, is determined by (1) the number of organisms present at the beginning of and introduced during the period of massive reproduction, (2) the reproductive capacity and survival efficiency of the several asexual generations, and (3) the number of asexual generations which precede gametogenesis.

If one assumes that the clinical infections in feeder cattle arise from the relatively small number of coccidia which are normally present in the intestinal mucosa, as is hypothesized by Marsh, and that the oöcyst discharges of such infections are typical for clinical coccidiosis, as is presumably the case, then one is forced to assume also that asexual reproduction undergoes a drastic modification. Normal reproduction of the few coccidia present in carriers would result in a relatively small rather than the observed large number of oöcysts.

It is difficult to visualize the means by which coccidia, destined to produce oöcysts in the normal number of generations, can multiply faster at one time than at another. One may assume that the proportion of asexually reproducing survivors of each generation is increased in some manner. This might or might not be accompanied by an increase in the number of coccidia produced each generation. From what is known regarding the size and number of asexual generations in the bovine coccidia, it appears to the writer that an increase in merozoite survival, sufficient to produce clinical infection in the prescribed number of generations, would be impossible without an alteration of the fundamental characteristics of the coccidia. At present, there is no evidence that the rate of reproduction is increased, nor do we have an adequate explanation of the manner in which it could be accomplished.

As an alternative, one may assume that a large population of coccidia is developed from the small number present in the carrier by means of an increase in the number of asexual generations preceding oöcyst

production. If the time required for asexual reproduction in such cases were equal to the prepatent period of infections originated by inoculation with infective oöcysts, it would then follow that growth of the coccidia must be speeded up so that the development of individual generations requires less time than normally. However, unless asexual reproduction of coccidia in bovine carriers is relatively sluggish—which is certainly not true in the case of certain coccidia of passerine birds, for example, which are known to produce generations on daily schedules during chronic as well as severe infections⁶—it would appear that a shortening of the generation time cannot account for the development of a clinical infection. On the other hand, if asexual reproduction were to continue, uninterrupted by oöcyst discharge, well beyond the normal prepatent period, it would then be possible for an originally small number of coccidia to produce a clinical infection. The fact that in experimental bovine coccidiosis low grade and clinical infections have identical prepatent periods argues against the likelihood that the number of asexual generations is increased in clinical infections in the feedlot.

The assumption that a lowering of resistance under certain conditions (during cold weather in the feedlot) results in an overwhelming of the host by coccidia that are present all the time requires the further assumption that under other conditions (during the summer on the range) the host is capable of resisting the same coccidia to such an extent that a population of the parasites large enough to be lethal to the host cannot be developed. This assumed resistance conceivably may function successfully against a few coccidia in the tissues, but that it has no real control over coccidial reproduction is demonstrated by the fact that clinical infections have been produced in carriers by artificial inoculation, under conditions involving changes in neither weather nor diet.⁷

SUMMARY AND CONCLUSION

Two hypotheses advanced to explain the occurrence of outbreaks of bovine coccidiosis are discussed. Evidence is presented, from the author's observations on coccidiosis of dairy calves in the southeastern

states, in support of the concentration hypothesis, which accounts for outbreaks on the basis of an excessive accumulation of parasites attendant upon the overcrowding of susceptible hosts. It is pointed out that the exacerbation hypothesis as presented by Marsh (1938) to explain outbreaks in feeder cattle in the northwestern states is based upon: (1) a misconception regarding the nature of low grade coccidial infections in cattle; (2) an unproved assumption that sporulated oöcysts are not available to the cattle in the feedlots; (3) a further assumption, unsupported by experimental evidence, that bad weather and certain dietary changes increase the susceptibility of the intestinal epithelium to coccidia; and (4) the untenable proposition that the small numbers of coccidia present in the carrier at any one time have the reproductive capacity to produce clinical infection.

It is concluded that until data are presented in support of the several assumptions upon which the exacerbation hypothesis is based, the concentration hypothesis should remain the logical basis for practical approach to the problems involved in outbreaks of clinical coccidiosis in cattle.

References

- ¹Skidmore, L. V.: Bovine Coccidia Carriers. *J. Parasitol.*, 29, (1933): 126.
²Marsh, H.: Healthy Cattle as Carriers of Coccidia. *J.A.V.M.A.*, 92, (1938): 184-194.
³Christensen, John F.: The Oöcysts of Coccidia from Domestic Cattle in Alabama (U.S.A.), with Descriptions of Two New Species. *J. Parasitol.*, 27, (1941): 203-220.
⁴Boughton, Donald C.: Sulfaguanidine Therapy in Experimental Bovine Coccidiosis. *Am. J. Vet. Res.*, 4, (1943): 66-72.
⁵Boughton, Donald C., and Davis, Leonard Reid: An Experiment with Sulfaguanidine in the Treatment of Naturally Acquired Bovine Coccidiosis. *Am. J. Vet. Res.*, 4, (1943): 150-154.
⁶Boughton, Donald C.: Studies on Oöcyst Production in Avian Coccidiosis. II. Chronic Isosporan Infections in the Sparrow. *Am. J. Hyg.*, 25, (1937): 203-211.
⁷Mohler, J. R.: Report of the Chief of the Bureau of Animal Industry, 1941: 81.

Supposing

A correspondent to the *Pennsylvania Farmer* says: "Suppose we should have another drought this year—then what?" The editor replies: "Suppose we don't have such a calamity. If we are going to do any supposing why not get a bit of comfort out of it."

Accidents on the Farm

The high incidence of grave accidents occurring among farmers and farm workers indicates that farming is one of the most hazardous occupations. Members of the Mayo Clinic, in discussing the matter in their seminars and pointing out the large number of farmers who were maimed and disabled in the pursuit of their work, brought about a meeting at Rochester of the Farm Safety Section of the Minnesota Safety Council, in cooperation with the local safety societies. The report of the meeting is a 19-page pamphlet, a copy of which was received from Dr. Carl Schlottbauer of the Mayo Foundation. The toll of accidents reported is 18,000 farmers killed and 225,000 gravely injured in one year, most of the accidents being considered preventable. The material is divided into (1) Farm Machinery, (2) Livestock, (3) Traffic, (4) Electrical, (5) Home, (6) Farmstead, (7) Abstracts from Papers and Talks, (8) A Doctor's Point of View, (9) Cottonwood County Safety Campaign, and (10) Summary of reports. The more interesting features (to us) were Dr. Schlottbauer's excellent advice on the handling of the various species of farm animals and the physician's recount of his experiences in treating 300 seriously injured patients in eight years. Both of these doctors, independently arrive at the same conclusion, that the jack-of-all-trades life (our rudeness) of the farmer is responsible for most of the accidents. The farmer who uses a particular machine for but a few days per year is less qualified than the fulltime driver and he operates on rough ground. It is important to consider that animals have organs of defense which they know how to use better than the farmer is apt to realize. Beware of the most tractable bull and take no chances around animals, were among the Doctor's timely warnings. [*Abstracts of Proceedings, Farm Safety Institute, Rochester, Minn., March 8, 1944.*]

In making serological tests for pullorum disease, "sandy" or doubtful reactions are the result of a low concentration of pullorum agglutinins and indicate an old quiescent infection or a recent acute one.

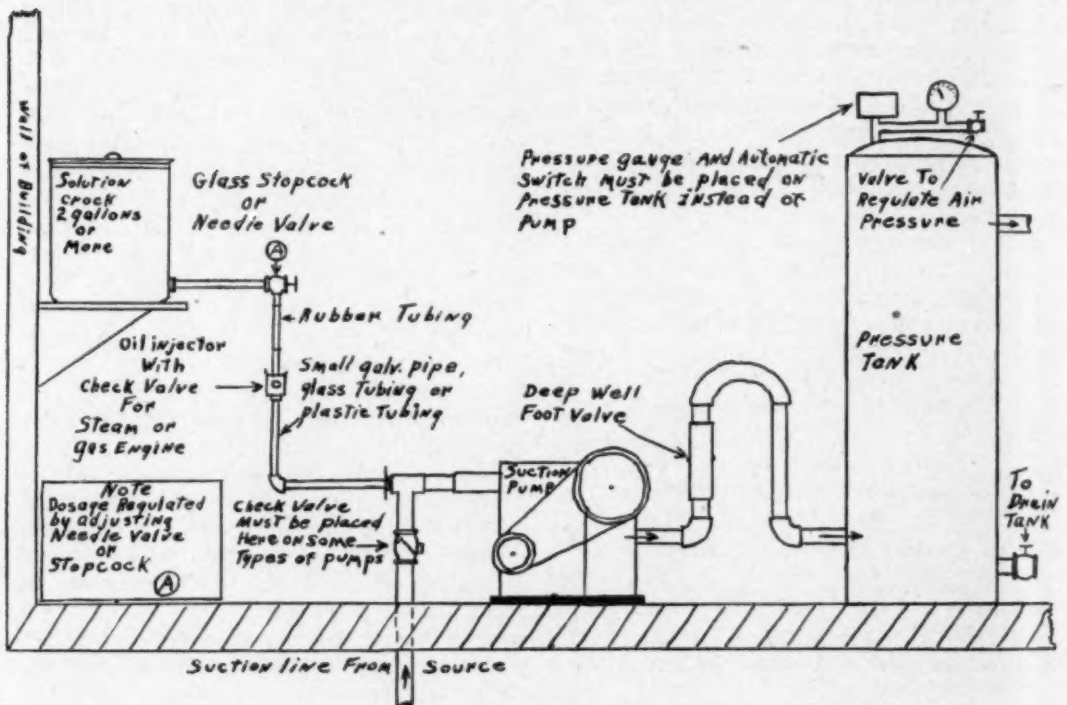
Home-Made Hypochlorinator

E. E. GRINSTEAD, D.V.M.

Yakima, Washington

A SAFE WATER supply is cheap health insurance. Water may be clear and of a pleasant taste and smell, yet be polluted. Not all polluted supplies contain disease organisms but the supply must be considered a potential carrier of diseases such

Contaminated water containing a few disease-producing organisms on a dairy farm is dangerous because the milk is apt to become infected. These organisms may multiply rapidly in the milk and spread the disease to the consumers.



Home-made hypochlorinator.

as typhoid and paratyphoid fever, dysentery, diarrhea, or enteritis and cholera. Diseases which destroy livestock, such as tuberculosis, hog cholera, and intestinal worms may originate from polluted water. The bacteriologic test of water does not indicate the presence or absence of disease producing organisms. However, this test indicates the presence of contamination which could be accompanied by any of the above disease-producing organisms. A contaminated supply may not cause illness in man or animals for years and then again it may cause illness and death if it becomes polluted by disease-producing organisms.

A water supply, whether from a cistern, spring, or a dug, driven, or drilled well, must be properly located and constructed. Great care must be taken to exclude surface water. However, regardless of all the precaution taken, an occasional water supply may be contaminated due to the natural earth formations and the locality. Therefore, it becomes necessary to disinfect the supply.

There are available on the market many patented, automatic, mechanical hypochlorinators and they are recommended and preferred as the safest permanent device for continuous chlorination but their cost may

make them prohibitive for many individuals. Therefore, it is necessary at times to provide a home-made hypochlorinator to make the water supply safe. Because the home-made hypochlorinators are not as efficient as the patented ones, the operator must be instructed to supervise them strictly.

We have never approved the use of home-made hypochlorinators except as a temporary measure until a safe supply of water is obtainable. However, since the war, it has become necessary to allow their use due to the shortage of materials. Many types of home-made hypochlorinators have been tried and after many inquiries, we have set up a chlorinator that is working satisfactorily. For the original plans, I am indebted to the Oregon State Board of Health, Portland, Oregon. It was necessary to make several changes before the chlorinator would function properly.

In assembling the hypochlorinator, a check valve is placed between the pump and pressure tank. Upon installation it was found that the ordinary check valve did not close fast enough, therefore, too much back pressure was created, causing a back flow into the solution crock. In a short time, the valve leaked causing an overflow of the solution crock. To correct this condition, a deep well foot valve or check valve was installed in an upright position as indicated by the drawing. A hole was drilled through the 2-gallon crock about $1\frac{1}{2}$ inches above the bottom. Through this, a small galvanized pipe was inserted and held in place by tightening nuts over gaskets on each side of the crock. This crock was placed on a rack or stool above the pump. A needle point valve was next installed. As this valve must be changed from time to time due to corrosion and crystallization, it was suggested that a glass stopcock be used. Rubber tubing such as is used on milking machines or glass tubing or the plastic tubing used on some oil furnaces would probably be more suitable than the galvanized pipe. They should last longer and not corrode. Instead of placing a check valve in the suction line, we used an oil injector with a check valve such as is used in steam or gas engines. This is placed in an upright position just below the needle point valve.

The needle valve and the upper glass

container which holds the oil are removed and the two openings closed by welding. Because we could not see the solution flow when in operation, we enlarged the needle valve opening and a tube extending through the opening was welded in place. By doing this, the fluid could be seen through the lower glass of the oil injector when in operation. By placing this injector here, the check valve closes when the pump stops. The chlorine solution will continue to drop for a few minutes until the pressure is equalized. A short piece of rubber tubing is used to connect the injector to the needle valve. This is used because of the vibrations of the pump and in order to disconnect the solution crock for cleaning if necessary because of crystallization in the bottom of the crock. The galvanized pipe is then fastened to the bottom of the injector and connected to the suction line on the pump.

We used several different chlorine compounds on the market but found that Clor caused the least amount of corrosion and crystallization. The original plan called for 1 cup plus 4 teaspoonfuls of Clor to each gallon of water. However, we use this amount in 2 gallons of water with better results.

The chlorine residual can be increased or decreased by operation of the needle point valve. Once the desired residual is obtained, it can be maintained constantly by counting the drops per minute through the glass on the oil injector. The O'tolidin test is used and the owner is shown how to run the test and instructed to do so once a week. The department also inspects the chlorinator periodically and runs a residual test.

A home-made chlorinator should not be encouraged as a permanent installation since most ordinary users will not give it the proper maintenance. It should be used only in cases of emergencies.

Because plants manufacture carbohydrate in sunlight and use it for growth during the night, alfalfa should be mowed in the late afternoon. The inferiority in food value of morning-cut as compared with late-afternoon-cut alfalfa is pronounced, according to carefully conducted tests made at the New York Agricultural Experiment Station.

Mortality of Mammalian Young with Possible Nutritional Causes

MARK L. MORRIS, B.S., D.V.M.

New Brunswick, N. J.

For many years, there has been a high mortality among the newborn of several species of mammals. In addition to several well-recognized causes, either an agalactia or a nutritional insufficiency of the mother's milk may account for some of these losses.

In the horse, Way¹ states that, "In cases of malnutrition very frequently foals are fully developed, born alive, but are weak and unable to stand and suckle. Those that are able to nurse may do so for a few days and then weaken and die. Autopsy reveals no visible lesions."

The symptoms are somewhat similar in cattle. Newborn calves, although large and fully developed, may either be unable to nurse or may suckle normally for a few days and then weaken and die.²

In lambs, part of the mortality may be accounted for by weakness at birth, infections, pneumonia, and sporadic conditions. The influence of the ewe's milk on lamb mortality has not been evaluated at this time. (Cole and Thorp).³

Baby pig mortality of this type has been given more study than in other domestic animals. It is estimated that approximately 30 per cent of the pigs born die before weaning—a loss that is of real concern to the swine industry, particularly at this time when the supply of feed of all kinds is critical and pork is needed. The sow, a multipara, produces a copious flow of milk to feed her litter, and this heavy milk flow exerts stress on the tissues of the mother. A number of investigators have studied mortality in baby pigs and the cause has been attributed to mineral and protein deficiencies in the ration of the sow.

Fairbanks⁴ has found that a ration adequate for the maintenance of mature hogs or for growing pigs from 60 lb. to market size will, if fed to lactating sows or weanling pigs, fail to provide adequate nourishment, and a high mortality will result. This loss occurs even though sufficient nutrients are supplied in the form of protein, fats, carbohydrates, minerals, and the *commonly known* vitamins.

In testing dog foods, the Committee on Foods of the American Veterinary Medical Association and the American Animal Hospital Association has found essentially the same condition as that reported in swine. A ration nutritionally adequate for maintaining an adult dog, including the gestation period, will fail when fed to a bitch nursing a litter of pups. The same ration fed to weanling pups up to 4 months of age will fail to provide adequately for normal growth. This condition commonly occurs in brood bitches, and although variously diagnosed, is sometimes referred to as "acid milk." The whelps nursing such a female simply weaken and die. On autopsy, no lesions are found.

In the black fox, as in the dog, the same symptoms prevail. Gassner⁵ states that, "Infant mortality in fox whelps is at present the most serious problem facing the fox industry. On many ranches, the death rate exceeds 80 per cent of the pups born." Gassner also reports that apparently certain dry basal rations supplemented with horse meat for feeding of foxes may fail to provide for lactation in one instance and be adequate in another.

When the human infant fails to gain on mother's milk, it is taken from the mother's breast and a prepared formula substituted, with the physician providing the feeding schedule.

The use of the terms "complete dog food," "balanced ration," etc., are commonly employed in nutritional literature, on

¹Personal communication. Dr. Cassius Way, New York City.

²Personal communication. C. F. Huffman, Michigan State College, East Lansing, Mich.

³C. L. Cole and Frank Thorp, Jr., Michigan State College, East Lansing, Mich.

⁴Personal communication. B. W. Fairbanks, University of Illinois, Urbana, Ill.

⁵Personal communication. F. X. Gassner, Colorado State College, Ft. Collins, Colo.

labels, and in advertising. The Committee on Foods defines a complete animal ration as "a combination of ingredients which, when fed to a normal animal as the only source of nourishment, will provide satisfactorily for fertility of the male and female, gestation and lactation, normal growth from weaning to maturity without supplementary feeding, and maintain the normal weight of an adult animal whether working or at rest." A complete dog food should, therefore, contain all factors necessary for normal reproduction, including lactation and normal growth of the pup following weaning.

In the past, it was thought that such a death loss might be prevented by supplementing the ration with good quality protein. Hoppert⁶ has observed that dog food known to be inadequate for lactating females will provide the bitch with sufficient nourishment to nurse her young if it is fortified with whole cow's milk, and the pups will grow normally after weaning. We have found, however, that the same ration as employed by Hoppert can be supplemented with fresh poultry offal (known by test to have a high protein value), with casein and methionine, or with fish-liver meal or meat meal, and still be inadequate for the bitch nursing pups; a nutritional insufficiency of the milk develops, and the young dogs die. These limited observations suggest, therefore, that the protein quality or quantity is not the sole etiological factor responsible for lactation failure in dogs.

Recently, Nakamura, Morris, and Atkinson,⁷ while studying the blood of pups dying as a result of an apparent deficiency in the milk of the bitch, noted a decline in the number of red blood cells and a drop in hemoglobin. Red cell counts fell as low as 1.5 to 2.5 million per cubic millimeter, and hemoglobin dropped to 7.5 Gm. per 100 cc. Weakness and emaciation accompanied the blood changes.

Three of a litter of six nursing pups were treated parenterally twice a week with 0.8 unit liver extract.* The response in the treated pups was prompt; their abdomens became distended with milk, body

weights increased, growth resumed, and the red blood cell count increased rapidly and the hemoglobin at a slower rate. On the other hand, the three untreated pups, nursing the same mother, died. The three treated pups were weaned and then fed the same diet as the mother had received and on which she had failed to suckle the litter. Injections of liver extract were discontinued, the animals grew satisfactorily; the hemoglobin and red cell count, however, remained unchanged for four to five weeks. Observations on three litters of pups have been completed and four litters are under study. At present, the results are as follows: A new lot of liver extract, from the same manufacturer, failed to give a hematopoietic response in anemic pups. A preparation of a *Lactobacillus casei* factor† (commonly known as folic acid concentrate), containing an equal amount of folic acid as that of the original liver extract, when administered parentally, produced a marked increase in red blood cells and a somewhat gradual rise in the hemoglobin. Pyridoxine hydrochloride, when administered subcutaneously to anemic puppies, produced a marked increase in the number of red blood cells. The daily gain in body weights of the puppies treated either with the *L. casei* factor or with the pyridoxine hydrochloride were less than the gains in body weights of the puppies treated with liver extract. The amount of hemoglobin and red cell counts decrease rapidly the first three or four weeks after birth, and it appears that in the absence of the hematopoietic factor, or factors, in the milk of the mother, the hemoglobin and the red blood cells continue to fall, finally endangering the life of the young.

Since certain foods which contain no liver are known to provide adequately for all phases of reproduction and growth, liver cannot be the only source of these essential factors. Careful examination of the ingredient formulas of such foods reveals the use of a limited amount of corn products and the presence in considerable quantities of whole wheat or wheat flour by-products. Conferring with Fairbanks on the ingredients used in a basal ration which will consistently cause a death loss in suckling pigs, it was found that the ration fed the sows contained about the

⁶Personal communication. C. A. Hoppert, Michigan State College, East Lansing, Mich.

⁷Supplied by Abbott Laboratories, North Chicago, Ill.

⁸Frank I. Nakamura, M. L. Morris, and Leroy N. Atkinson, New Brunswick, N. J.

†Supplied by Merck & Co., Inc., Rahway, N. J.

same order of ingredients which also results in failure of bitches to properly nourish the pups when used as dog food. Both the inadequate swine ration and the inadequate dog ration are rich in corn products and poor in wheat by-products.

Successful swine breeders commonly employ a brood sow ration prepared from standard middlings, wheat bran, ground oats, some corn, minerals, protein concentrates, and alfalfa hay. Skimmilk is commonly used instead of water for preparing the "slop." Sows on such a ration usually raise a high percentage of the litter farrowed. It would appear, therefore, that these vitamin B complex factors are probably present in whole wheat, particularly in the wheat feed products, e.g., middlings, red dog, bran, and germ, also in most legume hays and fresh green pastures. Perhaps these factors are also present to some degree in whole oats. However, oats together with timothy hay and corn are commonly fed to mares in foal which not infrequently produce weak, sickly colts. Oats, therefore, may not be too rich a source of the factors required for normal lactation. Way¹ suggests that, for equines and bovines, a ration to be nutritionally adequate should contain at least 1,200 lb. per ton of a combination of the whole grain cereals, wheat, corn, oats, and barley, and also a good quality alfalfa leaf meal.

Little is known concerning the normal blood picture of animals that suckle their young and receive diets known to be efficient for the production of milk of high nutritive value. The interpretation of results obtained when various synthetic factors are used is, therefore, rendered difficult.

The complexity of the problem and the urgent need for research is apparent. Present observations would indicate that all of our domestic animals, and human beings as well, are involved. To study all these species simultaneously, coördinating the effort to save manpower and materials, is essential if we are to conserve vital feed-stuffs and improve efficiency in livestock production. To accomplish these purposes, a council for the study of mammalian lactation failure has been established with the hope that, by initiating the work under the direction of an organized group, much duplication of effort can be avoided.

Fish and Wildlife Service Earnings

Besides conserving wildlife and planning for its future well being through scientific research and regulatory laws, Fish and Wildlife Service, USDI, furnishes the market with furs salvaged in the pursuit of its work. During the fiscal year of 1943, this service sold \$118,261 worth of furs, according to the report of Frank G. Ashbrook, officer in charge of the research division. Of this sum, \$25,318 was derived from rodents and predatory animals sacrificed in control work and \$6,565 from experimental animals. Trapping of muskrats on refuges at widely separated locations (New York, Maryland, South Dakota, Utah) accounted for \$79,463 worth of the furs sold.

"Hardware Disease" and Food Poundage

Several years ago, "hardware disease" made the Tonics and Sedative column of the *Journal of the American Medical Association*, master periodical of the medical profession. A rural newspaper down on the Wabash had reported a veterinarian finding a piece of wire in the heart of a cow. So, the editor of the w.k. T & S, in his task of tracking down jokes on country newspapers, reproduced the news item under a wisecrack headline. Unaware of the investigational work of the National Live Stock Loss Prevention Board and others, the snappy repartee was pardonable. Nevertheless, when informed (in a letter) that wire is notorious for upsetting the cardiographic vibrations of *Bos taurus domesticus* down in Indiana and elsewhere, and that a Hoosier vet who'd fail to detect the presence of invading hardware as the disturbing factor couldn't expect to make a living from professional fees, the said editor's views still verged in the general direction of skepticism. "I still think it's a good joke," he replied in the "there-ain't-no-such-animal" mood.

This particular eventuality is not dug from the files in derogation. It was found in search for proof that, in the social whirl, the agencies which keep a lot of poundage from the human dietary are unknown and unmeasured. In other words, man does not have to worry about the source of his food supply. The veterinary service has to do the worrying, unseen and unsung.

SURGERY & OBSTETRICS

AND PROBLEMS OF BREEDING

Bovine Uterine Torsion

WILLIAM E. WELSH, D.V.M.

Buffalo, Minnesota

DURING the past four years, an unusual series of 12 clinical cases of uterine torsion has aroused my interest in this subject. I was unable to correct five of these by ordinary external methods. After being forced to do corrections by laparotomy, I have learned that this procedure need not be avoided or delayed because of fancied difficulty. It should be a method of deliberate choice rather than a last resort.

It is possible for the clinician to determine, at the time of diagnosis, just about how difficult a torsion correction is likely to be. Assuming that one is confronted with a large or medium sized fetus, then the amount and firmness of the rumen content usually make the difference between an easy or difficult correction.

EXTERNAL CORRECTION

Rotation of the utero-fetal mass is often a simple matter when the rumen is relatively empty. If the twisted portion of the canal is penetrable, it may be possible for one to grasp the fetus, to swing it, and then to turn it by a sudden end-point effort.

As the rumen fill becomes larger and firmer, correction becomes more difficult even though the twist remains penetrable. Elevation of the dam's hind quarters sometimes helps by relieving pressure. If the fill is not too large, the common practice of rolling the dam in the direction of the twist may be effective.

Whatever external procedure is used in attempting to correct a torsion, unsuccessful trials should not be carried on to the point of exhaustion of both the patient and the operator. If the rumen is very large and firm, the clinician should prepare for

laparotomy while the patient is still in good condition.

The internal method is not difficult for the veterinarian who does any surgery at all. The operation presents only the simplest of surgical problems and most certainly it should not be avoided because of risk. Following the laparotomy, rotation by internal and lateral manual manipulation is very easy unless the rumen is extraordinarily large. The prognosis is excellent with a uniformly prompt and uneventful recovery of the dam. Lactation starts and continues normally through convalescence.

LAPAROTOMY

It is best that the cow remain in standing position. To assure this, no more than 10 to 15 cc. of 2 per cent procaine solution should be used epidurally to prevent undesirable straining. The same solution is also used to anaesthetize the skin and peritoneum. The head should be tied to the left with a nose leader. No other restraint is needed as the cow suffers no more than slight discomfort and rarely interferes or goes down.

The laparotomy incision is higher and shorter than that required for the cesarean operation. A ten-inch vertical skin incision is made in the upper middle of the right paralumbar fossa. Incise directly across the musculature. Separation of the muscles creates retention pockets which later cause swelling and delay healing. Hemorrhage control presents no serious problem.

After penetrating the peritoneum, the heavy sheet of the mesentery is sometimes a little confusing even when it is recognized. Follow it caudally to its turn where one may contact the uterus without difficulty.

A paper read at the January, 1944 meeting of the Minnesota State Veterinary Medical Society, Buffalo, Minnesota.

INTERNAL CORRECTION

If the twist is to the left, that is toward the rumen, pass the hand over the uterus to the wall of the rumen. Then go downward, exploring for fetal parts which may be used for pressure points in attempting rotation.

If the twist is to the right, over and away from the rumen, pass the hand downward and forward between the uterus and the mesentery along the right abdominal wall. If no fetal handhold is found, the uterine wall may be used for rotation pressure. Near the antero-ventral extremity, the uterine wall is usually not tightly distended. Press medially and upward into this heavier part, keeping the fingers together to avoid possible injury to the uterus.

Directional diagnosis is apparently simple but sometimes tricky. One should suspect that he may be wrong in direction anytime he experiences trouble in rotating the mass. It may turn readily in what was originally thought to be the wrong direction.

Whatever the direction of force or the pressure point, the mass may be rocked from side to side and then turned over by an extra effort just at the end-point of a swing in the right direction. When the fetus is quite large, considerable strength may be needed for this final effort. Damage to the uterus is not necessary. The fingernails should be short even though rubber gloves are used, and the uterus should not be too tightly stretched at the pressure point.

CLOSURE

Following correction of the torsion, the abdomen is closed and normal labor is allowed to proceed for awhile before assistance is given. The effect of the epidural anaesthesia is waning by this time. A continuous catgut suture is used in closing the peritoneum. This suture is necessary for prompt recovery and it should not be carelessly placed.

Four muscle tension sutures of heavy catgut are used. These are placed well back so that they do not tear out. The muscle sutures prevent strain on the peritoneal suture but they should not be too tight. The skin is closed with linen, leaving a small ventral opening for drainage

and to prevent inflation of the subcutaneous tissues during labor.

Sulfanilamide powder has simplified aftercare as its liberal use greatly assists in maintaining a pus-free and rapidly healing wound. Peritonitis with subsequent adhesions are avoided by leaving several ounces of the powder between the uterus and the mesentery, and between the mesentery and the abdominal wall. The abdominal wound is kept saturated with the powder while the suturing is being done.

A cotton and collodion dust cover is used. The skin sutures are removed on a go-by call anywhere from five to fifteen days later. The caretaker is instructed to keep drainage free but not to flush out the wound.

SUMMARY

The probable ease or difficulty of correction of bovine uterine torsion is predictable. Such prediction may be safely based upon observation of the amount and firmness of the rumen content.

When it is obvious, by observation or trial, that torsion correction is likely to be difficult, the clinician should not hesitate to use the internal method. The operation is simple; rotation by lateral manual manipulation is usually very easy; and the prognosis is excellent as the dam continues to eat and "comes to her milk" in a normal manner.

If the internal method is used after the point of exhaustion has been reached by operator and patient, naturally the prognosis is less favorable.

Deaths from Anesthesia

Records of deaths from anesthesia at Duke Hospital (*Annals of Surgery*, June, 1944) register 38 fatalities (on the operating table) out of 54,128 patients ($= 0.702/M.$). Among 39,880 general and spinal anesthetics, there were 27 deaths ($= 0.677/M.$). Two thirds of the latter group were Negroes, although they were but 15 per cent of the total number of patients undergoing operation.

Of 15 different anesthetics used, the death rate was highest for avertin-ether ($= 1.85/M.$) and cyclopropane

(= 0.691/M.). Ether was used in 14,724 cases with 6 deaths (= 0.407/M.).

By anesthetic deaths is meant those fatalities in which the anesthesia could not be completely exonerated notwithstanding that autopsies showed that some of the patients were suffering from lesions from which they may have died sooner or later.

Spinal anesthesia is not recommended for weak, acutely ill subjects though it offers advantages not found in other types of anesthesia. All-in-all, ether, first of the general anesthetics, has remained the aristocrat since 1846.

Is High Altitude a Factor in Iliac Thrombosis of Horses?

Comes an interesting letter from Dr. L. E. McGee, consulting veterinarian of the horseracing circle of Mexico (*Hipodromo de las Americas*), commenting on the article "Thrombosis of the Iliac Arteries in the Horse (*J.A.V.M.A.* 104, (Apr. 1944): 218-220). The letter mentions "an unusual number of these cases occurring at the race track in Mexico City" (altitude about 8,000 feet) which he and Col. J. H. Kintner, V.C., U. S. Army have been investigating. A report on the high incidence is promised.

Readers of the JOURNAL will recall that in lieu of known facts, traumatized endothelium due to violent circulatory turbulence at the site affected has been advanced as the probable cause—a not unreasonable hypothesis in view of the gushing volume of blood to which the posterior end of the aorta of race horses is exposed. The intensified circulatory stress of horses trained and raced in high altitudes certainly strengthens the theory of endothelial injury. So far as we know, altitude has never before been mentioned among the probable etiological agencies. The veterinary profession will await with interest the report on the present investigation.

For hasty preparation of a surgical site in large animals, the use of mercuric chloride solution, 1:500, and painting with pure tincture of iodine following the usual clipping, shaving, and soap and water washing rate high among experienced surgeons.

Ether Anesthesia for Boars and Colts

At a recent meeting of the Maine Veterinary Medical Association, C. M. Merrill, South Paris, Me., acclaimed ether by inhalation as the anesthetic of choice in the castrating of large boars and colts. The ether is given with a mask in the standing position. When the subject goes down and is rolled into position, the anesthesia lasts just long enough to do the operation, and the animal is "up and around" before the instruments are washed up. A rope looped around the snout behind the canine teeth snubs the big boar to a post and he goes down pulling against the rope. One third to two thirds of a pound of ether is the dose required for a 400-lb. boar.

Cesarean Section in a Goat

A parturient goat in labor for twenty-four hours was brought to the hospital suffering from a prolapse of the vagina and a 180-degree torsion involving the whole body of the uterus. In spite of the prolonged labor, the animal was in excellent condition and the labor pains frequent and forceful. As the torsion could not be reduced either by manipulation nor through a four-inch exploratory laparotomy, cesarean section was performed promptly for fear of prolonged anesthesia of the fetuses, the flank having been clipped, shaved, and disinfected, and the incision enlarged to 10 inches. Sterile technique was used throughout the operation.

The torsion had forced the fetuses well forward in their respective cornu. The right horn was incised and the fetus removed. The torsion was then readily reduced and the second fetus easily delivered through the same incision. The hysterotomy was closed with two rows of Lembert sutures of No. 0 catgut, the peritoneum with interrupted sutures of No. 0 chromic catgut, the muscles and the skin with interrupted sutures of No. 1 and No. 2 surgical silk, respectively.

The kids were quite profoundly anesthetized for six hours, after having been induced to start breathing by toweling. The mother revived at about the same time. The patients were taken home the following day. Recovery was complete.—James A. Edgett, B.V.Sc., Hartford, Conn.

CLINICAL DATA

Three Types of Johne's Disease

In investigating the incidence of Johne's disease by means of the johnin test, three types of the disease, capable of modifying the reaction, are described by Johnson and Pratt in the *American Journal of Veterinary Research* (April, 1944): (1) active infection in the intestines severe enough to cause characteristic lesions and symptoms, (2) comparatively resistant animals in which the lesions are slight, and (3) sensitivity to skin infections. Occasionally, animals in the last two groups may be spreaders of infection.

Mastitis: Young Doctors Too Timid

Herd mastitis is extremely difficult for the young graduate to handle if he happens to be too timid to "talk turkey", hit straight from the shoulder, and lay down the rules of sanitation in no uncertain terms—terms the owners will undersand and obey. The time-tried custom of pampering owners doesn't work in the handling of herd mastitis. Short cuts lead but to the failures one reads about in the journals. If, after getting a forceful lecture, the owner is not impressed about the prospects, all hope of controlling the disease is gone. Mastitis can be controlled but not by timid practitioners and unwilling clients. At least, that is the way it seems in my practice.—*C. H. Haasjes, Shelby, Mich.*

Mechanism of Milk Fever Cure

The fact that milk secretion stops when a certain pressure develops explains the curative effects obtained by insufflation of the udder in parturient paresis. The pressure created by the air stopped milk secretion to prevent further drainage of calcium and even some of the calcium in the milk may be resorbed to hasten restoration of the blood calcium levels. This knowledge also explains why cows may be dried

off by merely stopping milking. When the maximum pressure has been reached, secretion stops and resorption of the secretion products begins which is followed by involution of the gland.—*W. E. Peterson, University of Minnesota, before the Indiana Veterinary Medical Association.*

Portable Cattle Chute for Field Work

Robert E. Dunn, federal veterinarian stationed in Montana for brucellosis work, has devised a portable chute mounted on a two-wheel trailer and set up for current use in a corral, although owners of range cattle are urged to provide more substantial chutes to facilitate that sort of disease-control work, dehorning, etc., notwithstanding that Dr. Dunn handles 600 head per day with his portable contraption. The Montana Livestock Sanitary Board has prepared plans and specifications for distribution to ranchmen.—*From a USDA Release, June 2, 1944.*

Phosphorus Deficiency in Southwestern Cattle

The Texas Agricultural Experiment Station, collaborating with the U. S. Bureau of Animal Industry in a five-year study of phosphorus deficiency of cattle made on King's Ranch near Falfurrias, Texas, revealed that 6.5 Gm. of disodium phosphate or triple superphosphate per each 6 gallons of drinking water produced an impressive increase in the number of calves born and in the body weight of the cows and calves. The calves of the treated cows were 69 pounds heavier at weaning time than those of the controls and 127 pounds heavier at 18 months, and they dropped 30 per cent more calves. In the last two calf crops, the birth rate was 85 per cent for the treated cows and 64 per cent for the untreated ones. Moreover, 73 per cent of the

phosphorus-fed cows dropped calves two years in succession as compared to 64 per cent for the controls. Because fluorine is toxic for cattle, the superphosphate was defluorinated.

Fertilizing pastures with defluorinated triple superphosphate at the rate of 150 pounds per acre was also effective. In May, 1944, the cows grazing on treated pastures were 100 pounds heavier than the controls and 50 pounds heavier than those which were fed phosphorus.—[*Thomas H. Bartilson, U. S. Bureau of Animal Industry: "Impressive Results." The Country Gentleman, 114, (Feb. 1944): 32.*]

Acetonemia (Ketosis) an Avitaminosis

Acetonemia of dairy cows, studied in 15 states, was found to be related to the low intake of carotene during the winter months—the period of dry feeding. It occurs mainly in heavy milkers four or more days after calving and disappears, as a rule, in April with the coming of the pastoral season. In February, 1944, the author set up a biochemical research laboratory at Corinth, Miss., where from four to ten cases of acetonemia from the practice of Dr. W. L. Stroup were available for study, daily. All former conceptions of the nature and mechanism of the disease were set aside as so many unproved theories, and bioassays of the blood, urine, and milk of clinically affected and apparently normal cows were made for their values in acetone, vitamin A, and sugars, using standard laboratory methods.

The research revealed that during the period of dry feeding (winter) many southern cattle (of the region studied) are borderline cases of acetonemia, showing hyperacetonemia and hypoglycemia. A million U.S.P. units of vitamin A daily for three days is announced as the specific cure.—[*J. W. Patton: Acetonemia a Vitamin A Deficiency—II, Vet. Med. 39, (July 1944): 271-278.*]

No Feeder Knows His Own Feed

You can't tell by merely looking inside the sack or at your corn, oats, alfalfa, or any other feed exactly how much they contain of these necessary foundation feeds:

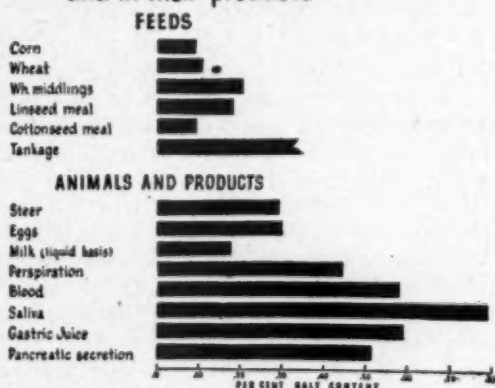
calcium, phosphorous, iodine, vitamins, or trace minerals. To answer would cost an immense amount of money. . . . It takes years to rebuild worn out soil by spreading lime and phosphorous and rotating crops. It takes only minutes to mix these same essential elements in your feeds.—*Vitamin-eral News.*

Salt the Foremost Mineral Deficiency

The discrepancy between the sodium chloride levels of livestock feeds and those of the body tissues and secretions is, at least, one of the reasons why animals require additional salt in their rations. The

SALT IN FEEDS AND ANIMALS

and in their products



—From the *Poultry Tribune*

Chart showing why the salt allowance is an important part of farm-animal nutrition.

need of a salt supplement is greatest in herbivores since forage is more salt-deficient than the food of the meat eaters. The craving for salt is an outstanding example of depraved appetite, of tissue hunger for an essential component. While wildlife gets along well enough by accumulating the sodium chloride contained in its aliment, the digestive capacity of the domestic animal is not sufficient to supply the need of rapid growth and productivity. A study of the chart reproduced herewith shows why domestic animals require more salt than is contained in their feed.

In buying War Bonds, you demonstrate that "The American Way of Life" is not a meaningless phrase.

Practical Diagnostic Tests for Veterinarians

LEWIS E. HARRIS, M.Sc.

Lincoln, Nebraska

IT IS WORTH WHILE for any practicing veterinarian to have available the equipment and supplies necessary to make routine diagnostic tests. Such tests are not only of value in arriving at or confirming a diagnosis, but they also have a definite value in increasing the prestige of the practitioner.

It is not necessary to have elaborate and expensive equipment. Sufficient equipment for many important, routine tests can be purchased for less than ten dollars.

For those who wish to make more complex tests, a microscope is necessary. If only examinations for parasites and ova, and routine blood counts are to be made, a utility microscope with high and low power objectives, i.e., x100 and x425 magnification, will be suitable for most of such work. This type of microscope can be purchased new for less than \$30, or a better grade for \$80. On the other hand, if identification of bacteria and some of the small parasitic forms is necessary, a microscope fitted with an oil-immersion lens will be required. Such an instrument costs from \$150, upward. However, at the present time, it is necessary to obtain a special priority rating from the War Production Board before any new microscope can be purchased.

For certain bacteriologic work, as in mastitis control, a small incubator and a few Petri dishes, pipettes, and culture tubes are needed. A satisfactory incubator can be built for less than \$10, or may be purchased for from \$30, upward.

In the following, only the more practical diagnostic tests will be discussed, with special reference to the method of testing, suggested technique, and interpretation of results.

CYANIDE TEST

A simple test for detecting the presence of hydrocyanic acid (prussic acid) in pastures, forage, ensilage, rumen contents, etc., may be made as follows:

Director, Pharmaceutical Research and Control Department, Norden Laboratories, Lincoln, Nebraska.

METHOD

1) Select plant material collected from pastures and field; ensilage, hay, corn stalks, etc.; or rumen contents, as the particular case may require.

2) Chop material into fine shreds, fill a clean pint fruit jar one-half full, and moisten slightly with water.

3) Hang one cyanide test strip (prepared by Grignard method or purchased from supply house) over the edge of the jar, with the longer end inside. Screw the lid on tightly and allow to stand at room temperature for twenty-four hours.

INTERPRETATION OF RESULTS

1) Liberation of hydrocyanic acid is indicated by reddening of the test strip.

2) If a large amount of cyanide is present, reddening occurs within one-half to one hour. If only a trace is present, as long as twenty-four hours may be required for color change.

3) If the paper remains lemon yellow or light orange after twenty-four hours' exposure, it indicates a negative test.

Notes: 1) Store cyanide test strips in a cool, dark place to prevent deterioration.

2) Exposure of the strips to strong light or moderately high temperatures causes them to change from lemon to dark orange. Test strips so colored give inaccurate results and should not be used.

3) The jar lid must be screwed on tightly, to prevent the escape of hydrocyanic acid before it can act on the test paper.

HEMOGLOBIN ESTIMATION

METHOD (Using Tallqvist Hemoglobin Scale)

1) A drop or two of blood is collected from a vein or a puncture deep enough to make the blood flow without squeezing, or on only very gentle pressure. Wipe off the first drop and discard.

2) Slowly absorb the blood on a section of filter paper from the Tallqvist book and allow it to soak in until the gloss of moisture has disappeared.

3) Fold part of the clean paper back of the drop and compare the color with the printed scale at the back of the book, by allowing the blood-stained portion of the paper to appear at various holes in the scale.

4) Read the percentage at the side of the color which it best matches.

INTERPRETATION OF RESULTS

1) Generally speaking, the normal hemoglo-

bin content for most animals will vary from 80 to 100 per cent by this method.

2) McBryde reports that anemia is one of the most important factors in causing shock when pigs are vaccinated against hog cholera. In general, pigs with hemoglobin of 70 per cent or more show little evidence of shock. Some with 45 to 65 per cent show mild shock; many with 30 to 60 per cent show pronounced shock; and most of those with 25 to 55 per cent show severe shock, with some death loss.

Notes: 1) It is essential that the color comparison be made after the gloss of moisture has disappeared and before the drop has dried. Otherwise, errors of as high as 50 per cent may be made.

2) Readings are best made in broad daylight, with light over the shoulder, looking squarely (not sideways) at the chart.

3) The Tallqvist method has advantages in that it is rapid and is easily done. It is serviceable only for a rough estimation, but is sufficiently accurate for most field examinations. If a more accurate laboratory method is required, the Sahli, Dare, or Newcomer methods are recommended.

KETONE TEST

This is a rapid method for detecting the presence of acetone or other ketone bodies in the urine, and aid in diagnosing acetonemia.

METHOD

1) Place 5 cc. of fresh urine in a test tube and add the contents of one ketone test capsule (containing sodium nitroprusside and ammonium sulfate). Shake the tube a few minutes to dissolve chemicals.

2) Add 5 cc. of stronger ammonia water and set the tube aside for observation. (see note 1 below.)

INTERPRETATION OF RESULTS

1) A positive reaction is evidenced by a brilliant purple color within twenty minutes. This may range from a light to a dark purple, depending upon the amount of acetone or ketone bodies in the sample.

2) If no purple color appears within twenty minutes, the test is negative.

3) A positive reaction in this test is sufficient for a positive diagnosis of acetonemia.

Notes: 1) The ammonia water may be used to overlay the urine in this test, in which case a positive reaction is evidenced by a purple formation at the junction of the two liquids; or it may be mixed with the urine, in which case a positive reaction is shown by a purple formation throughout the liquid.

2) Any color which appears after twenty minutes has no significance, and should be disregarded.

MASTITIS TESTS

The term "mastitis tests" is a misnomer, since the following tests do not specifically indicate mastitis infection. However, they do indicate an abnormal reaction of the milk which is usually associated with udder infection and probable mastitis. More specific and complex tests can be made by using the microscope and incubation procedure.

TECHNIQUE FOR THE COLLECTION OF SAMPLES

1) Wash the udder with a solution of sodium hypochlorite containing 200 parts per million available chlorine (this may be prepared by adding one level teaspoonful of B-K to 2 gallons of water). Dry the udder with a clean cloth.

2) Wipe the end of each teat with a pledget of cotton saturated with 70 per cent ethyl alcohol, or 50 per cent isopropyl alcohol solution.

3) Discard the first two or three streams of milk from each quarter and collect a sample in a clean container. The samples for use in the Hotis and in microscope or bacteriologic methods should be collected in a sterile container.

A) BROMTHYMOL BLUE SOLUTION METHOD

1) After preparing the udder and teats as outlined above and milking out two or three streams, collect a 5 cc. sample from each quarter in a clean tube, arranging or marking them for identification.

2) Add 0.5 cc. bromthymol blue test solution to each sample, and mix thoroughly by inverting the tube.

3) Allow to stand for thirty seconds, then compare the tubes with one another.

INTERPRETATION OF RESULTS

1) A yellowish green indicates negative or normal milk.

2) Green, dark green, blue, or deep yellow indicate abnormal milk and such reaction in connection with results of physical examination is sufficient for diagnosis of mastitis.

3) This test seldom gives a false positive reaction, but may give false negatives. Therefore, a negative reaction, especially if the physical examination of the udder or milk suggests pathologic changes, is not always conclusive.

Notes: 1) This test should not be used for two weeks following freshening, or for three weeks prior to drying up.

2) Tubes used for this test should be rinsed with distilled water, or, if rinsed with tap or well water, should be dried thoroughly with a clean gauze; otherwise a false positive test may result from alkaline water.

3) The udder secretions during the dry period may be tested the same as regular milk.

B) BROMTHYMOL BLUE TEST-CARD METHOD

1) After preparing udder and teats as outlined above, and milking out two or three streams, hold a bromthymol blue test card in an inclined position in one hand, and with the other hand direct two or three drops from the teat onto the edge of the correspondingly marked sensitized spot, making certain that the drops come in contact with the spot.

2) Allow three minutes before reading color change. Then compare the color areas with one another.

INTERPRETATION OF RESULTS

1) If the resultant color over the sensitized spot area is yellowish green, the reaction is negative.

2) If the color is light green, the condition is suspicious, and if dark green, blue green, or bright yellow, the reaction is positive, indicating abnormal milk and such reaction, together with results of physical examination, is sufficient for the diagnosis of mastitis.

Notes: 1) This test is operated on the same general principle as the bromthymol blue solution method, and although less accurate, it is much more convenient for the rapid preliminary testing of large herds.

2) Do not store these test cards in stables nor near refrigerating units, since ammonia from either source may discolor the sensitized spots and render the cards useless. Keep them out of sunlight, and in a dry place.

3) This test should not be used for two weeks following freshening, or for three weeks prior to drying up.

C) HOTIS METHOD

1) After preparing the udder and teats as outlined above and milking out two or three streams, collect a sample from each quarter in a sterile container which has been arranged or marked for identification.

2) Transfer 9.5 cc. of each sample to a sterile test tube, add 0.5 cc. of a sterile 0.5 per cent aqueous solution of bromeresol purple and close tube with a sterile cotton plug.

3) Mix samples well by a swirling motion, and place them in an incubator at 37 C. for twenty-four hours.

INTERPRETATION OF RESULTS

1) No change in the purple color or in the physical appearance of the milk (other than that which might be caused by "souring") indicates a negative reaction.

2) A characteristic change in color from purple to green or yellow-green, together with canary yellow flakes or balls of growth, indicate the presence of *Streptococcus agalactiae*.

Notes: 1) There are conflicting reports on the accuracy of this test but, in general, it is considered more accurate than the bromthymol method. It may give false negative reactions

in mastitis where the causative organisms are primarily staphylococci.

2) Even though this test may be more accurate, it has one disadvantage in that it is somewhat difficult to use in the field, because incubation is required.

More specific laboratory examinations may be used for special mastitis control work. These methods require the use of a microscope and various bacteriologic procedures. Such tests are valuable if the practitioner is specializing in dairy work and mastitis control programs, but they require special equipment and more time. They are too complex to be included in this report. References to them may be found in the journals and in bulletins prepared by United States Agricultural Experiment Stations, particularly the one at Michigan State College.

PREGNANCY TESTS**A) RABBIT TEST IN MARES**

1) Select healthy, nonpregnant rabbits at least 3 months old, and keep them absolutely isolated and separately and individually housed for at least two weeks prior to the test.

2) Collect about 2 oz. of blood from the jugular vein of the mare into a clean (and preferably sterile) bottle. Allow the blood to clot, decant the clear serum into another bottle, and store in refrigerator until ready for test.

3) Inject 7 to 10 cc. of the serum slowly (not less than five minutes into the marginal ear vein of the rabbit, and return the animal to the isolation quarters.

4) Twenty-four to thirty-six hours after the injection, the rabbit is anaesthetized, a laparotomy performed, and the ovaries and uterus examined.

INTERPRETATION OF RESULTS

1) If the ovaries are normal in appearance, the test is negative.

2) A positive test is indicated by freshly ruptured follicles (corpora hemorrhagica) on each ovary. These occur as one, to as high as fourteen bright or dark red conical elevations about 2 mm. in diameter, with a small pitlike depression in the center. The ovaries and uterus are enlarged and the uterus is usually congested.

Notes: 1) This test is applicable in the mare only between the forty-fifth and ninetieth days following conception. Tests made before or after this period are not reliable.

2) Certain pathologic conditions may rarely cause false reactions, but a positive test is quite reliable—probably well over 95 per cent. However, a negative test should be viewed with suspicion if the sample was collected before the forty-fifth or after the ninetieth day.

3) It is absolutely essential that the test

rabbit be individually housed for at least two weeks prior to the test, since ovulation may occur from being "hopped" by another female.

4) The laparotomy wound may be sutured and the rabbit reused for the same test in not less than two weeks. During this period, of course, the animal should be individually housed. However, unless these tests are being made very frequently, the practice of reusing test animals may take more time and cause more trouble than can be saved by the procedure. Experimental work has shown that such test animals are quite satisfactory for food purposes.

5) The Friedman test for human pregnancy is the same as the method outlined above, except that 7 to 10 cc. of freshly voided morning urine is injected intravenously instead of the serum. Interpretation of the test results is the same. The human test should not be made until the normal menstrual period has been passed at least ten days. This test is about 99 per cent accurate. False positive tests are obtained occasionally during the menopause, and in rare cases where certain pathologic conditions may exist. False negative tests are obtained in cases where the sample was collected too early, and in those rare cases where very small quantities of the choriogonadotrophic hormone are being secreted.

B) RAT TEST FOR EQUINE PREGNANCY

This method has an advantage, in that it is applicable between the 45th and 145th day following conception. However, it has disadvantages, in that it is frequently difficult for practitioners in many areas to obtain laboratory rats, and the test is more difficult and requires more time than the rabbit test. The rat test is too complex to be included here. References to it may be found in the literature.

C) CHEMICAL TESTS FOR PREGNANCY

Of the several chemical tests proposed, the "Cubani" test has received the greatest attention in veterinary medicine. Generally speaking, there is no reliable chemical test for pregnancy.

For those who have the equipment for, or are interested in more detailed and elaborate laboratory tests, the following references are suggested:

Rebrassier, R. E.: Methods of Diagnosis of Intestinal Parasites of Small Animals. Cornell Vet., 30, (1940): 133.

Benbrook, E. A.: Fecal Examination for Evidence of Parasitism in Domestic Animals. J.A.V.M.A., 74, (1929), 1009.

Simmons: Laboratory Methods of the U. S. Army. Lea and Febiger, Philadelphia, Pa.

Kolmer and Boerner: Approved Laboratory Techniques. Appleton and Century Co., New York.

Kelser and Schoening: Manual of Veterinary Bacteriology. Williams and Wilkins, Baltimore, Md.

A Natural Case of Canary Malaria

F. R. BEAUDETTE, D.V.M.

New Brunswick, New Jersey

ON AUG. 11, 1943, J.H.G., of Red Bank, N. J. presented a dead but well preserved canary for examination. According to the owner, this was the third young bird to die in a lot of 75 young (hatched in March) and 25 adults all of which were kept in out-of-door cages. The postmortem examination showed acute swelling of the liver and spleen. The latter measured 15 mm. by 4 mm. A culture was taken from the liver, and a blood smear made from the heart.

Since the original stock had come from another New Jersey breeder whose birds had suffered two serious outbreaks from which, on one occasion, a paracolon was isolated, and on another occasion (Aug. 3, 1943), *Salmonella typhimurium* was isolated, it was supposed that this too might be a bacterial infection. In fact, the supposition was strengthened by the acutely swollen liver and spleen. However, incubation of the liver culture showed that no growth of any kind developed; therefore, the blood smear was stained with Wright's and examined. The blood was found to be infected with a *Plasmodium*. Since the nucleus of the host cell was displaced by the roundish gametocytes, and since the pigment granules of the latter were coarse and elongated, it is probable that the parasite was *Plasmodium cathemerium*.¹

When the owner was notified of the diagnosis on Aug. 12, he was advised to screen the outdoor cages to exclude mosquitoes. Recently, a letter was directed to the owner to inquire whether or not screening was resorted to and, if so, what effect it had. His reply dated Jan. 5, stated that the 1/4 inch wire of the aviary was immediately covered with regular mosquito wire and that no more birds died at that time. Later, about eight young died, which the owner decided was due to improper feeding, and more recently two more young birds died from an unknown cause.

It is interesting to note that while natural infection of canaries is rather rare,

Journal Series paper of the New Jersey Agricultural Experiment Station, Rutgers University, department of poultry husbandry.

at least two other cases have been found recently. One of these was reported in California by Harmon² and the other in New Jersey by Hudson.³ In both cases, the parasite was identified as *P. cathemerium*.

References

- ¹Manwell, R. D.: The Identification of the Avian Malaras. *Am. J. Trop. Med.*, 18, (1938): 565-575.
²Harmon, C. M.: A Fatal Case of Spontaneous Malaria in a Canary. *J.A.V.M.A.*, 101, (1942): 502.
³Hudson, C. B.: Spontaneous Malaria in Canaries. *J.A.V.M.A.*, 104, (1944): 158.

What Is a Hamster?

When a frank doctor of veterinary medicine asked the other day "What in the deuce is a hamster?" we thought it equally frank to confess that our acquaintance with this laboratory rodent is not so old either. It



The hamster (= *Cricetus cricetus*.)

dates back to 1937 when L. Enos Day, pathologist of the BAI in Chicago, let us in on the secret that the hamster (= *Cricetus*, spp.) was better than the guinea pig for certain investigational work. So, outside a specialized realm, not knowing the hamster may not be as grossly ignorant as it may seem. A quick glance through reference material shows that most of it is dated in the late 1930's.

The hamster is a somewhat coarse-haired rodent of the Muridae (rat) family, native of eastern Europe and Asia, which has been found to possess advantageous susceptibilities to certain pathogenic microorganisms.

The Laboratory Examination in Diagnosis

Inasmuch as laboratory findings have come into the field of clinical work by leaps and bounds during the last two decades and are now conceded to be indispensable to the successful handling of many diseases, veterinarians may be thankful for the cooperation received from state and com-

mercial laboratories. The "serum industry" is especially active in this connection, not only in maintaining modern laboratories and experienced technicians but also in aid given in the field by expert clinical pathologists. Accurate diagnoses have replaced guess work in a large way, thanks to the laboratories. But never to be forgotten is the fact that despite the new order, which is somewhat newer in veterinary than in human medicine, the responsibility of making the diagnosis still rests with the clinician—the person who collects the specimens and knows all of the details of the problem at hand, the only person competent to correlate the laboratory finding with the "bedside" observation. Each can help, or plague, the other, because inductive reasoning remains the dominant factor in diagnosing disease.

Pullorum Disease and Avian Coccidiosis

When the survivors of the hatches escape pullorum disease they are still in danger of being wiped out by coccidiosis. In keeping the mortality of poultry high, no twain of maladies is comparable. They are the famous killers of the domestic fowl and the irony of it is that every part of their nature is an open book. The one is bacillary, the other protozoan and neither has anything that is out of the range of the weapons of extermination. Pullorum disease and coccidiosis are good examples of costly diseases of animals that could be banished from the earth but which, paradoxically, continue to take their cut—examples proving that science leads the procession while its application lingers behind.

Vaccinate Pigs After Weaning Time

Veterinarians of Iowa, Nebraska, Illinois, Indiana, Minnesota, and South Dakota are persuading swine owners to vaccinate their pigs against cholera about two weeks after weaning as the best means of insuring lifelong immunity, at minimum cost and trouble. The higher cost, greater difficulty in handling, and the setback from vaccinating older hogs is pointed out by Dr. W. M. MacKellar of the BAI in a release of the USDA dated May 9.

Sulfur for Coccidiosis in Lambs

Ground crude sulfur added to the feed of lambs at the rate of 0.5 to 1.5 per cent of the ration prevents the development of coccidiosis. The value of this treatment was determined by the Bureau of Animal Industry, USDA, through experiments conducted at a large feeding establishment in Nebraska. Sulfaguanidine has also proved beneficial as a preventive, but the cost is high and the drug is more difficult to administer. The test, lasting seventy-two days, was made on 1,400 lambs and with proper controls to check the results. Sulfur in excess of 1.5 per cent produced an objectionable laxative action, while lower dosage proved to be harmless.

Coccidial and Verminous Diarrhea in Cattle

Coccidiosis and stomach worms are two common causes of diarrhea in cattle, though diarrhea of dietary origin is not uncommon. Both are detected by microscopic examination of fecal samples. However, the symptoms are often sufficiently characteristic to make a tentative diagnosis while waiting for the laboratory report. Coccidiosis is manifested in a few days by a severe dysentery. The milk flow is depressed, appetite diminished and the patient weak, anemic, and in poor condition. Peristalsis of the entire intestinal tract is suspended. The treatment consists of daily doses of sulfanilamide for six days: 1 gr. per pound of body weight on the first day and 0.75 gr. per pound for the next five days. If started early, this treatment will cure most of the cases. Severe cases should be given tannic acid enemas and supportive treatment of dextrose solution and whole blood, intravenously. Preventive treatment consists of interrupting the life cycle of the organism, including disinfection of stables.

Stomach-worm disease is recognized by detecting the presence of worm ova in the feces, microscopically. *Haemonchus contortus* is the most common parasite found. Diarrhea of the dysentery type is the most common symptom, together with "bottle jaw," generalized dropsy, anemia, loss of appetite, and decreased lactation. Phenothiazine is the drug of choice. The dose

is 1.5 oz. per 100 lb. of body weight, maximum 6.5 oz. The treatment may be repeated in a week or ten days. Severe edema about the throat may be lanced to let the accumulated serum drain out. Feeding and watering with a stomach tube is practiced if the throat is gravely sore. Case reports are appended.—R. B. Helming, D.V.M., Cresco, Iowa, in the *Iowa Veterinarian*, June, 1944.

Tests for Bovine Mastitis

Dairy Bacteriologist J. M. Frayer, Vermont Agricultural Experiment Station (*Milk Technology*, March-April, 1944) describes in revealing detail the various tests in use for the diagnosis of bovine mastitis which are worth naming since space forbids describing them:

Physical examination	Strip-cup test
Brom-thymol-blue test	Catalase test
Chlorine test	Microscopic Examination
Modified Whiteside test	Hotis test

Not the least important in clinical and laboratory work is cultivating the acquaintance of both the principles and the techniques involved in these means of detecting the presence of infections in the bovine udder.

The Early Nineteenth Century Veterinary Surgeon

Balzac (1799-1850), famous French novelist, in his *La Cousine Bette* wrote: "I mean to remain a humble doctor of the faculty of social medicine, a veterinary surgeon for incurable maladies.

s/V. C. Pahlman, Puyallup, Wash.

Because Monsieur Balzac was sorely perturbed over the incurable ills of society, the veterinary surgeons of long, long ago must already have made a deep impression on the folk of his day.—Ed.

The susceptibility of mammals to tetanus is highest in man and lowest in dogs. The descending scale is man, white mouse, guinea pig, rabbit, soliped, and dog. The susceptibility of chickens is lower than that of the dog.

The Liver in Veterinary Medicine

The liver of herbivorous animals carries a heavy load, but it seems to be so "fearfully and wonderfully made" that it more generally escapes clinically recognizable morbidity than the liver of the human being. Structural and functional derangement of the liver is more often detected in the autopsy room and abattoir than in the living animal. Liver diseases in clinical veterinary medicine are comparable to most of the avitamoses. Pathognomonic syndromes are lacking in our rude diagnostic methods.

A Case of Sporotrichosis in a Horse

Major T. C. Jones and Capt. Fred C. Maurer of the Veterinary Corps, U. S. Army describe a case of sporotrichosis (*Bul. U. S. Army Med. Dept. March, 1944*) in an army mount purchased in Chicago in 1940 and shipped to the Front Royal Remount Depot. The infection first appeared on the forearm in October, 1941, in the form of numerous, subcutaneous abscesses which responded to local antiseptic treatment. The horse was readmitted to the hospital in March, 1942, again showing numerous abscesses on the forearm, and others on the breast and shoulder. Not responding to medical treatment the abscesses were extirpated in June and July, 1942. The wounds healed and the subject was turned out to pasture, but was readmitted for treatment in April, 1943. The lesions were again removed surgically and treatment with potassium iodide by mouth was initiated. There was no recurrence two months later. Study of purulent material disclosed the presence of *Sporotrichum schencki* — gram-positive, ovoid bodies which stained with difficulty. Grown on maltose agar, the organism formed filamentous hyphae and spores. The disease was reproduced from cultures in mice, hamsters, rats and in a horse. Guinea pigs and rabbits were negative. Typical specimens were isolated from the experimental animals.

Sporotrichosis occurs in man and in horses, the clinical tableau is somewhat similar to that of epizootic lymphangitis and cutaneous glanders (farcy). The established case should not be difficult to dif-

ferentiate from ulcerative lymphangitis (Priesz-Nocard disease), the more acute, and explosive wartime plague affecting the legs of horses.

Period of Incubation of Rabies

Charles W. Bower, president of the AVMA, tabulates the usual period of incubation of rabies as follows in *The Kansas Stockman*:

Animal	Days
Dogs	14 to 60
Cats	14 to 60
Cattle	14 to 80
Horses	21 to 90
Hogs	21 to 60
Sheep	21 to 60
Goats	21 to 60
Birds	14 to 60
Rabbits	9 to 90
Guinea pigs	8 to 60

The period in the human being is given as ten to ninety days, depending upon the location of the bite. The author mentions a canine case in which the incubation period was seven months.

Thyroid and Adrenals

The thyroid gland at the neck and the adrenal glands in the renal zone, largest of the endocrines, are both regulators of somatic energy. The thyroid governs "constant energy," the adrenals "flash energy." The energy of a plodding plow horse and the placid elephant proceeds under the stimulus of the thyroid while the flash energy of the cat or tiger springing upon their prey is governed by the adrenals. A study of the relative weights of these organs in 3,734 animals* showed that nature provides the relative needs. In the slow-going animals, the weights are about the same, whereas in the quick, flashy creatures, the adrenals are as much as four times larger than the thyroid, the obvious intention being to supply a great deal of energy quickly. To be remembered is that the little pituitary at the base of the brain holds the reins over both. As is often said the "pituitary is maestro of the whole endocrine orchestra."

*Crile, cited by Frank W. Lane: "Glands, Sources of Vital Energy." *Science Digest*, July, 1944.

NUTRITION

MATERIAL FURNISHED BY THE COMMITTEE ON NUTRITION

The Use of Phosphorus-Containing Substitutes for Bone Meal in Livestock Feeding, with Particular Reference to the Fluorine Hazard

The scarcity of bone meal for animal feeding has raised a number of problems concerning substitute sources of phosphorus. These problems include (1) the most advantageous use of phosphorus-containing feeds, (2) the conservation of phosphorus by the avoidance of excessive supplies to livestock, and (3) the avoidance of chronic fluorosis in livestock when mineral phosphates containing fluorine are used as ration supplements.

PHOSPHORUS IN FEEDS

Whole grains will generally contain 0.25 to 0.40 per cent of phosphorus and hays from 0.15 to 0.25 per cent on the approximate dry basis. In many areas of the country, hays, ranges, and pastures contain so little phosphorus (0.10% or less) as to be seriously deficient in this element for livestock feeding. The plant protein concentrates from the available analyses will average, on the approximate dry basis:

	phosphorus (%)
cottonseed meal	1.19
linseed meal	0.84
soybean oil meal	0.61
peanut oil meal	0.55
corn gluten meal	0.42

By-products from wheat milling contain phosphorus in following percentages:

	(%)
wheat bran	1.32
wheat middlings	0.92
red dog flour	0.51

Animal protein concentrates are also rich in phosphorus, but quite variably so in many cases. Dried skimmilk will average

Abstracted from the tenth report of the Committee on Nutrition of the National Research Council, Washington, D. C. The report was prepared by Dr. H. H. Mitchell, University of Illinois.

0.9 per cent phosphorus, meat meal 1.6 per cent, tankage (60% protein) 3.8 per cent phosphorus, and fish meals from 2.5 to 5.5 per cent.

By combining protein concentrates with grain and grain products to produce rations and grain mixtures containing adequate levels of protein for livestock, the phosphorus content of the mixture is generally raised above 0.3 per cent and may be raised considerably above 0.4 per cent. Since both in the maintenance and in the growth of farm animals there is a close relationship between the requirement for protein and the requirement for phosphorus, it follows that the higher the phosphorus requirement, the greater the proportion of protein concentrate that should be included in the ration, and, as a result, the greater the proportion of phosphorus thus included.

PHOSPHORUS REQUIREMENTS OF LIVESTOCK

The phosphorus requirements of livestock have been determined within rather narrow limits, especially for poultry and swine, and may be expressed conveniently for the purpose of this report in percentages of phosphorus in the total ration expressed on the approximately dry (8 to 10% moisture) basis. Good support may be found in the literature for the following values:

Poultry:	growing chick	0.45 to 0.20
	laying hen	0.45
Swine:	growing pig	0.40 to 0.20
	pregnant sow	0.20 to 0.40
	lactating sow	0.40
Cattle:	growing calf	0.30 to 0.15
	pregnant cow	0.15 to 0.30
	lactating cow	0.30
Sheep:		0.15

A comparison of the phosphorus requirements of farm animals expressed as necessary percentages of phosphorus on the basis of total dry feed, with the phosphorus contents of farm feeds, indicates that, when protein and vitamin D are supplied in adequate amounts, the occasions when a phosphorus mineral is needed to supplement farm rations should be rather exceptional. Such occasions would arise especially when hays and forages abnormally low in phosphorus, less than 0.10—0.12 per cent, constitute the sole ration, or very nearly so.

The situation can be presented in a somewhat different way, namely, on the basis of the ratio of phosphorus requirement to protein requirement by the animal, and the ratio of the content of phosphorus to that of protein in plant feeds. In very early growth, about 0.04 lb. of phosphorus is required per pound of protein required, while in the fully grown animal the ratio is approximately 0.02 lb. of phosphorus per pound of protein. In the cereal grains, the ratio of phosphorus to protein varies on the average from 0.027 to 0.033 lb. of phosphorus to each pound of protein, and in the vegetable protein concentrates, the phosphorus-to-protein ratio varies from 0.015 to 0.030 to 1.0. In animal protein concentrates containing considerable bone, the ratio may be much higher than these. Such considerations would lead to the conclusion again that, if the protein in a ration is raised to an adequate level by the proper combination of available feeds, the phosphorus may be simultaneously raised to an adequate level in most cases, without the need for a mineral supplement. Possibly the very young chick or pig would be exceptions to this statement, if animal protein feeds of high ash content are not used.

THE FLUORINE HAZARD IN MINERAL PHOSPHATES

In No. 113 of the reprint and circular series of the National Research Council, the Committee on Animal Nutrition summarized the experimental evidence of the toxicity to livestock of the fluorine in various minerals used as calcium and phosphorus supplements.¹ From a critical study of published data of a quantitative nature, it appeared that a concentration of 0.01 per

cent of fluorine in the total dry ration is approximately borderline between safe and unsafe levels for swine, sheep, and cattle, while for chickens the borderline level is about 0.05 per cent. However, in the interest of safety, the Committee was much more conservative in its recommendations, which specified permissible levels of fluorine in the total dry feed of 0.003 per cent for cattle, sheep and swine, and 0.015 per cent for chickens. For the total grain ration of sheep and cattle, these permissible levels are equivalent in general to 0.006 and 0.004 per cent fluorine, respectively. The equivalent percentages of rock phosphate (containing 3.5% fluorine) in the grain mixture, dry basis, are 0.086 per cent for swine, 0.11 per cent for cattle, 0.17 per cent for sheep, and 0.43 per cent for poultry.

These concentrations of rock phosphate would contribute only minimal proportions of phosphorus to the grain mixtures of livestock, equivalent to 0.01 to 0.06 per cent. However, defluorinated phosphates are now on the market that are guaranteed to contain 0.1 per cent of fluorine or less; not much, if any, more than steam bone meal. If added to grain mixtures to provide 0.003, 0.004, and 0.006 per cent fluorine, they could constitute 3 to 6 per cent of these mixtures and could contribute 0.6 to 1.2 per cent of phosphorus, assuming a phosphorus content of 20 per cent. Obviously, such products are entirely adequate, in proportions that are quite safe to feed, to supply all of the phosphorus needed by livestock, even for long periods of time. Furthermore, some of these defluorinated dicalcium phosphates have been tested for the availability of their phosphorus to animals by two members of the Committee and have been found to compare favorably in this respect with bone meal, or not to differ seriously from it. The metaphosphate of calcium, however, is definitely inferior in the availability of its phosphorus.

However, in volume production it seems to be difficult to defluorinate rock phosphate so that the fluorine content is reduced much, if any, below 1 per cent. A phosphate containing 1 per cent of fluorine and 14 per cent of phosphorus could be used to the extent of only 0.3 to 0.6 per cent of the grain mixture to comply with the recommendations of the Committee, and would contribute only 0.04 to 0.08 per cent

¹An abstract of this circular appeared in the JOURNAL (August, 1943).

of phosphorus. For poultry, it could constitute 1.5 per cent of the grain mixture and would contribute 0.2 per cent of phosphorus. Even in such amount, it may be sufficient to make up any likely deficiency in phosphorus that may exist in practical farm rations.

However, if considerable excesses of phosphorus are to be added in mineral form to farm rations to provide a wide margin of safety, and in particular to assure adequate levels when sufficient vitamin D is not present in the ration, or sufficient exposure to sunlight is not provided or available, then obviously a fluorine hazard may be incurred if mineral phosphates are used to provide this excess. The danger would not seem to be great in short periods of feeding, such as in the preparation of pigs for market, if the fluorine levels in the ration reach the borderline values of 0.01 per cent of the total dry feed for beef cattle, sheep, and swine, and 0.05 per cent for poultry. On this basis, a phosphate containing 1 per cent of fluorine and 14 per cent of phosphorus could be used in the grain mixture of beef cattle, sheep, swine, and poultry to the extent of 1, 1.5, 2.0, and 5 per cent, respectively, and would contribute to the grain mixture 0.14, 0.21, 0.28, and 0.70 per cent of phosphorus, respectively. These proportions of added phosphorus to a grain ration, properly balanced with respect to protein, should provide a reasonable margin of safety, even more so if the ration contains some animal protein feeds carrying a high proportion of bone.

RECOMMENDATIONS

The Committee, on the basis of the above considerations, recommends that the present scarcity of bone meal for animal feeding be met mainly by conserving what bone meal is available and by using fluorine-bearing phosphates sparingly. The need for any mineral supplements of phosphorus to farm rations adequately provided with protein is far less than is commonly supposed and such supplements generally may be dispensed with entirely in the feeding of most livestock under conditions designed to favor the best utilization of dietary phosphorus, *i.e.*, a liberal supply of vitamin D and an adequate but not excessive supply of calcium. This is particularly true of beef and dairy cattle and of sheep, except when subsisting largely on forages seri-

ously deficient in phosphorus (0.10% or less on the dry basis), and of swine and poultry except possibly in the early stages of growth. The conditions referred to above include the avoidance of an excess of calcium by an injudicious use of limestone and other carbonates of calcium as supplements to rations, and the provision of adequate to liberal proportions of vitamin D in rations in the form of a potent fish oil, an irradiated sterol or sun cured hay, or adequate access of the animal to sunlight. The need for large amounts of calcium by the laying hen may depress the utilization of phosphorus to such an extent as to warrant the use of a mineral supplement of phosphorus, especially if liberal levels of vitamin D or its equivalent in sunlight is not provided. If much of the phosphorus in a ration is provided by heated feeds presumably devoid of phosphatase, such as soybean meal, a high utilization of phosphorus can be expected to follow the inclusion in the ration of field-cured alfalfa leaf meal, or access to range or pasture. Otherwise, it may be advisable to use a mineral phosphate to raise the phosphorus level above that usually adequate.

The use of excessive amounts of mineral phosphorus supplements to provide, for example, twice as much or more of the element than is needed in a ration, is without benefit at all times, and, in times of scarcity of bone meal and other safe phosphorus compounds, is wasteful of materials that can be put to use, and may incur a dangerous hazard if fluorine-bearing phosphates are resorted to. Raw rock phosphate should not be used, for this reason, in amounts that can provide more than inappreciable additions of phosphorus to grain mixtures. Defluorinated phosphates containing 0.1 per cent of fluorine or less are safe under all reasonable conditions of use. Defluorinated phosphates containing up to 1 per cent of fluorine may be used in amounts to contribute considerable phosphate additions to grain mixtures, but only by raising the content of fluorine in the ration to levels that are borderline between the safe and the unsafe. While poultry, of all classes of farm livestock, seem least susceptible to the harmful effects of dietary fluorine, it is well to remember that borderline levels of fluorine (0.035 to 0.070%) in the rations of laying hens may raise the fluorine content of the yolks of the eggs

produced to three or four times normal (from 0.08 to 0.35 mg. per 100 Gm.). This result may have some bearing on the value of the egg in the human diet and on the hatchability of the egg if produced in a breeding flock.

Since the fluorine content of these so-called "defluorinated" phosphate minerals limits rather severely the extent to which they can safely be used in animal feeding, it is recommended that feed control officials take such measures as may be necessary to assure the buyer that the fluorine content is within the guaranteed limit.

Ammoniated Sugar Beet Pulp as a New Nitrogenous Feed for Ruminants

Considerable evidence has recently accumulated to show that ruminants are able to use certain nitrogenous compounds such as urea and ammonium bicarbonate as a substitute for part of their protein requirement—the microorganisms in the rumen being able to convert these nitrogen bearing compounds into bacterial protoplasm protein, which later becomes available for the use of the animal.

This experiment was set up to determine if beet pulp, which had been treated with ammonia, would support satisfactory growth when added to a basal ration which supplied only 6.94 per cent total protein. Holstein calves, weighing from 275 to 325 lb., fed the basal ration, failed to make satisfactory gains in weight and showed symptoms of a protein deficiency. They became very thin, developed a sharp back-boned hump, a pot belly, a rough shaggy coat, and a listless gait.

The addition of a suitable amount of the ammoniated beet pulp to the unsatisfactory basal ration gave almost as good growth as when toasted soybean meal was added to the basal ration as an additional source of protein. The animals receiving the ammoniated beet pulp grew at a rate of about 1.6 lb. per day as compared with a growth rate of 1.96 lb. per day for one animal fed the soybean meal.

The authors suggest the possibility that the microorganisms in the rumen were unable to use the nitrogen in the ration containing the ammoniated beet pulp for the synthesis of proteins which will supply

all of the amino acids which are necessary for satisfactory growth.—(H. C. Miller, *Journal of Dairy Science*, 27, March 1944, 225-241.)

The B Vitamin Requirements of the Horse

Relatively little information has been available concerning the nutrition of the horse as compared with other farm animals. This has been especially true with respect to their requirements for members of the B vitamins. It has been well established that the various B vitamins are not dietary essentials for the ruminant, as they are produced by the symbiotic action of microorganisms in the rumen. This experiment was set up to determine the requirements of the horse for certain members of the vitamin B complex.

In the investigations which were carried on over a period of nearly three years, the growth promoting properties of rations containing varying levels of three members of the B complex (riboflavin, niacin, and pantothenic acid) were tested on Shetland ponies.

As a result of the work, the authors conclude that riboflavin and pantothenic acid are both dietary essentials for the horse. Their studies indicate that 44 mg. of riboflavin per kilogram of body weight satisfies the requirements of the horse for this vitamin. They do not give the requirements for pantothenic acid. They conclude that niacin is either not a dietary essential for the horse or that its requirement is so low that it was supplied by their basal ration which contained less than 0.8 mg. of niacin per 100 Gm.—[P. B. Pearson, M. K. Sheybani, and H. Schmidt, *Journal of Animal Science*, 3, (May 1944) 166-174.]

Through an agreement reached by all interests concerned, New Zealand, in November, 1943, became the first country to enforce stated regulations on the grading of meat derived from farm animals. Poultry and fish are exempt. In this country, where meat grading is voluntary, only a small percentage of the civilian's meat is graded. For the Army, however, meat is graded under regulations of the OPA and the grading is done for the Quartermaster Department by the Veterinary Corps.

EDITORIAL

Farmer Vaccination of Hogs

UNDER THE PRESENT operations of livestock sanitary science in the United States, the historic discovery of Marion Dorset and his coworkers, Niles and McBryde, has sunk from the sublime to the ridiculous. On that account, it seems pardonable to bring up the hackneyed subject of farmer vaccination from time to time. Silence can breed contempt. The veterinary profession might be judged too incompetent to solve the problems intrusted to its keeping, or indicted for neglect of duty in wartime.

It seems to be true that some Cornbelt farmers are beginning to ponder the practice of scattering a deadly virus over the soil of their land, and thus perpetuate a major hazard to swine breeders. They go merrily on with disease-making methods instead of backing up the kind of eradication programs that brought rich returns to other branches of farm-animal production. Sadly, the expert livestock sanitarian has seen the handling of hog cholera sink to the level of ridicule in spite of his protests.

Furthermore, seeding down American farms with the virus of a deadly livestock disease is but one of the harmful derogations. In effect, farmer vaccination barricades veterinary science from the hoglot, at a time other grave diseases, like swine erysipelas and virulent enteritides, are becoming so embarrassing that Science is beckoned to come in to unravel man-made complications which baffle even the best clinical pathologists.

And lastly, the worn-out contention that veterinarians oppose farmer vaccination for selfish reasons has beautifully unhorsed itself. Goodness gracious! The use of hog-cholera virus by farmers has developed simultaneously with the greatest earning power that the Middlewest veterinarians have ever enjoyed. Whether coincidental to other factors or not, the fact

remains that, since scientific methods were pushed aside Cornbelt veterinarians have had bigger and better meal tickets year by year. In addition, free-for-all scattering of hog-cholera virus has set such a bad example in disease control among other livestock that veterinarians find it expedient to flock to the Cornbelt to set up their workshops. It's a case of "come on in, the water is fine."

The hunch to raise this moot question at this moment was the following news item in the 51-year-old magazine *Pathfinder* (June 5), reading:

The real food threats for 1945 are two livestock diseases . . . hog cholera and brucellosis of cattle. Recent surveys of the American Veterinary Medical Association show that brucellosis (e.g. contagious abortion of cattle) is the greatest threat in 16 states, and hog cholera is No. 1 menace in 11 states.

While the whole world is looking more and more to scientists for leadership, as this brief news item shows, the Cornbelt farmer whom the country trusts to produce food is taken in the opposite direction at a cost to American resources that can never be computed. The seeding down of millions of acres with a grave livestock disease is not easily counted in dollars and cents, and, besides, the unmanaged use of hog-cholera virus is increasing the burden of keeping swine breeding from being wrecked, but for the group that carries on despite the tremendous handicap imposed by the misled farmers.

Had the farmers' leadership started a program of hog-cholera eradication instead of, or along with, farmer vaccination twenty-five years ago, hog cholera might now be mastered and the other infections now causing so much trouble could be more easily handled. J. S. Koen, after many years of close contact with the swine breeders of Iowa and Illinois, told the Purdue University Conference in January that "the time is coming when farmers

who are swine breeders will demand that hog cholera be eradicated." But, as the *Canadian Journal of Public Health* says of cheese-borne typhoid fever: "Democracy will continue to suffer from its own vices—the unwritten rule by which expediency rather than principle governs policy."

The individual farmer has always been the best friend and sponsor of the individual veterinarian. So, we do not use "farmer vaccination" as an impolite criticism. The term represents more regret than censure, because in retrospect it is undisputably a march backward of twenty-five years in the handling of a grave threat to a large proportion of America's wealth, and a strange bedfellow for farmers, while the world is torn by conflict and our country is dissipating its resources at a terrific rate in a struggle for survival. Farmer vaccination cannot survive indefinitely. It is out of step with the march of mankind. The question of expediency is not discussed here because, to be fair, that would only bring out faults on both sides to no good purpose. Nothing is expedient now except to reduce the incidence of farm-animal diseases. In the epic of that effort—past, present, and future—the names of Salmon, Melvin, Mohler, Miller, and the cooperating state veterinarians will certainly outlive the champions of antiscientific practices in the field of livestock sanitary science. The brightest clouds in the ugly sky are the official and commercial groups

who stand steadfast against the unregulated use of hog-cholera virus.

This piece is not just another orthodox warcy; it is far-reaching. "Farmer Vaccination" is but the headline for a thrall overtaking the American people, a warning from an impersonal thing—veterinary science—that playing around with disease sacrifices the enduring power the United States will need aplenty when the war is over. The health of plant, man, and animal is the issue and the text. Other diseases than hog cholera are embraced. If national weakness, destitute farmers, unemployment, poverty and hunger are wanted, diseases of farm animals cannot fail to satisfy the wisher. "Cattle Disease Spreads, Grave Situation Seen, Law Violated" is a headline in the July 2, issue of the *Arkansas Gazette* (Little Rock) under which an inquiring reporter, the state veterinarian, and a county farm adviser warn the people of that state that the unlawful sale of anthrax vaccine by drugstores and feed merchants is responsible not only for the death of 2,000 cattle in one county (Cross), but also for the sweeping of anthrax to other parts of the state. They also give warning that surrounding states may have to clap a quarantine on Arkansas farmers to protect the nation against the harmful teachings of a presumably scientific producer of biological products which is encouraging farmer vaccination.

Science bides its time and always wins, although in the case of hog cholera, it has used up a gosh-awful lot of patience.

Mexican Veterinarians Complete Special Work



These four Mexican veterinarians have finished their special work in meat and milk hygiene at Michigan State College, East Lansing. Each of them was either in the Mexican Army or employed by the government. They are (left to right): Drs. Adrian Ezeta Gonzales, Alfonso Alexander Hernandez, Carlos Cruz Manjarrez, and Raul Huerta Campi.

The American Medical Association

For the making of comparisons with our own national and international JOURNAL, veterinarians ought to be interested in the following figures gleaned from the annual report of officers, Organization Section, of the American Medical Association.

Number of physicians

(U.S.A.)	185,903
Members of the A.M.A.	124,452
On mailing list of J.A.M.A.	108,452
Foreign subscribers	2,232
Foreign fellows	56
Exchanges	186

In the pursuit of its task, the A.M.A. publishes nine periodicals in addition to widely circulated reports—last year 46,000 by the Council of Pharmacy and Chemistry alone—and maintains liaison with 2,054 county societies and a component association in each of the states and territories, except Alaska and the Canal Zone.

The report shows a substantial increase of income from advertisements, membership dues, and book and reprint sales, over the previous year. Members were lost to the Army, Navy, and Public Health Service in 28 states, while gains were made in 27 states and territories.

Inasmuch as about 69 per cent of total physicians (185,903 : 124,452) belong to the A.M.A., the percentage of the whole and by states (as a meter of social delectation among men of medicine) adds up, approximately, to the same figures as in the veterinary profession. The marvel of the A.M.A., as seen in its annual report, is its many activities and liaisons which (in our proper sphere) the AVMA is only beginning to undertake. The physician's national organization is a tireless task force, indeed, from which veterinarians should be able to cut many a useful pattern.

In 1943, there were produced 3 million pounds of phenothiazine, or enough to treat 50 million animals. The estimated benefit derived by the livestock industry is 25 million dollars, or to be ultraconservative, 25 million dollars, for a single year. The total cost of the research work leading to the discovery of its anthelmintic property cost but \$10,000.—*From the Country Gentleman.*

Colonel Foster Retired

Col. Robert J. Foster (Corn. '02), V.C., U. S. Army, effective Sept. 30, 1944, has been retired after thirty-nine years and one month in the veterinary military service, which he entered without commissioned rank to serve in two world wars and mount,



Col. Robert J. Foster

by gradual stages, to director of the Veterinary Division, Surgeon General's Office, with the rank of colonel.

Besides his valiant efforts to obtain commissioned rank for army veterinarians which was achieved in 1916, and service in the Philippines and Army of Occupation following World War I, Colonel Foster has the distinction of being the first veterinary officer to be elected president of the AVMA, an office in which he served with well-remembered punch and dignity through the fiscal year of 1936-1937. His tenure is on record as one of important increase in membership, and general interest, and administrative reforms. In recalling the difficult task of obtaining commissioned rank for army veterinarians, the mind turns to Hunter, Treacy, Turner, Plummer, Stancliff, Jewell and Foster, whose conduct in the line of duty won distinction for the veterinary profession through merit. The retirement of Colonel Foster marks the end of an era of American veterinary history—and what an era of achievement!

CURRENT LITERATURE

ABSTRACTS

Demodectic Mange in Goats

Demodectic mange recently observed in a number of milk-goat herds in Missouri confirms the existence of caprine acariasis reported by Eloise Cram, and Hardenbergh and Schlottbauer in 1925. Although announced as rare in the United States, "it may be that its recognition is more rare than its occurrence." The disease is not fatal nor epizootic. The long



—After A. J. Durant, 1944

Photomicrograph of *Demodex folliculorum* var. *caprae* recovered from nodules of goat affected with follicular mange.

hair of Toggenburgs hides the lesions. Pruritus is not a constant symptom, although some goats rub the lesions against objects. The lesions are nodules localized on the legs, neck, chest, shoulders, sides, and rump. The Missouri cases corresponded in the size and number of nodules to those reported by Hardenbergh and Schlottbauer—upward of 80 and 90. When opened, the nodules (0.5 to 1.25 cm. in diameter) were found to contain a puslike, cheesy material comprising debris, excretory products, and the masses of *Demodex folliculorum* var. *caprae*, shown in the photomicrograph (see figure).

The spread of the disease was slow. But 1 to 2 head of the herds were affected. The fact that the parasite enters the skin by way of the sebaceous or other glands, instead of the hair follicles as in the dog, accounts for the slow spread of the infection. The treatment consisted of clipping the goat, lancing the nodules,

treating the pus cavity with carbolic acid, and painting the area with tincture of iodine. Carbolic acid kills the *Demodex* in one minute.

The author points out that there are six million milk goats in the United States and that they produce about ten million pounds of milk daily.—[A. J. Durant, Veterinary Department, College of Agriculture, University of Missouri: *Demodectic Mange in the Milk Goat*. The Milk Goat World, 29, (May, 1944): 1-4.

Tropical Mycoses

Tropical diseases due to the higher fungi, rare in this country, will gradually become more common with the return of a large number of men from the tropical theaters of war. To learn how to recognize them is the duty of physicians. The problem is made more complex through lack of knowledge concerning the classification of this group of parasitic infections.

Among the Ascomycetes are: *pie-dra trichosporosis*, a fungous disease affecting the shaft of the hair; *rhinosporidiosis*, a fungous disease attacking the nasal mucous membrane; *lymphangitis epizootica*, acquired from horses; and *histoplasmosis*, a systemic, often fatal infection, involving the internal organs which resembles kala-azar.

Among the Hyphomycetes named are: *pityriasis versicolor*, a widespread epidermomycosis, occurring also in temperate climates; *erythrasma*, due to *Microsporum minutissimum*, an eruptive dermatitis affecting several regions at one time (axillary, mamillary, umbilical, anal et al.); *trichophyton infections* (ringworm) usually caused by *Tinea alba*, a pustular, eruptive infection of the hands, also affecting horses, dogs, and cats; *Tokelau*, a noninflammatory pruritus, manifested by the appearance of scaly concentric rings, or coccards. The specific agent is named *Endodermophyton concentricum* because it grows only within the skin layers; *chimbera*, found in Brazil, which is often confused with Tokelau (loc. cit.) manifested by pruriginous patches covered with whitish scales on practically all parts of the body except hair and nails; *Tinea Intersecta*, of Ceylon, India, and China, a fungous disease characterized by cutaneous papules, and intense pruritus, due to *Endodermophyton castellani*—benign and readily cured; *cladosporian dermatomycosis*, an

atypical type of pityriasis versicolor involving the glabrous skin of the face and neck, due to *Malassezia tropica* (Jeanselme, 1904); clinically similar to syphilitic leucoderma, macular leprosy, seborrheic dermatitis, tinea versicolor, and vitiligo; *Tinea nigra* or pityriasis nigra, a mycotic skin disease due to a member of the family Cladosporia, occurring in Burma, southern China, and Ceylon, characterized by scaly, dark, nonpruriginous spots on any part of the body except the face; *keratosis nigricans palmaris*, manifested by pinhead size, deep brown or black papules on the palms, wrists, and the palmar and lateral surfaces of the fingers—cause *Cladosporium wernicki*; *tropical ringworm of Sabouraud*, of Japan, Indo-China, and Tonkin, a widespread dermatosis of the humid sections of the Far East, a chronic pruriginous disease beginning on uncovered parts of the body, probably due to *Trichophyton*, spp.—[Commander Lee McCarthy, MC-V (S), U.S. N.R.: *Tropical Mycoses*, J.A.M.A., 123, (Oct. 23, 1943): 449-454.]

So that contaminated specimens may be tested for virus content, drugs may be used as bacteriostatic agents.—Major M. Sanders, M.C., A.U.S., and C. H. Huang, M.D., College of Physicians and Surgeons, Columbia University: *Tissue Cultures for Virus Investigations in the Field*. Am. J. Pub. Health, 34, (May, 1944): 461-466.

Control of Livestock Diseases in the United States

The fight against animal diseases in the United States is notable and would seem to be of interest to British stockowners. The differences between American and British conditions bear comparing. While there are relatively fewer veterinarians in America than in Great Britain and livestock is too thinly scattered in some areas for a veterinarian to build up a practice within a reasonable traveling distance, yet this sparsity of livestock has its advantages.

In the United States a number of devastating diseases have been kept out by the quarantine of imported animals. Foot-and-mouth disease, bovine pleuropneumonia, and fowl pest were stamped out by slaughter whenever they appeared; and rigorous campaigns have been waged against Texas fever, glanders, dourine, and bovine tuberculosis. Progress has been made against brucellosis and pullorum disease to such an extent that eradication is but a matter of time. While hog cholera and swine erysipelas resist all attempts at eradication, cheap and effective methods of immunization are employed. The discovery of phenothiazine by the research workers of the U. S. Department of Agriculture has greatly facilitated the control of worm parasites. A number of diseases such as fowl paralysis, and bovine mastitis has not yet yielded to the efforts of the research workers. The largest single item of losses from animal diseases is £30,000,000 charged against parasites, the total for all species £103,000,000. The United States has 83,000,000 cattle and 100,000,000 hogs. The original plan of coping with brucellosis (test and slaughter) has given way to vaccination which is not entirely satisfactory nor universally adopted. In one state (North Carolina) bovine brucellosis has been completely eradicated. Johne's disease as in Britain is proving to be more widespread and more difficult to prevent than has been realized.

As in Britain, the control of bovine mastitis is proceeding upon definitely established lines, the handling of worm parasites in sheep has been greatly improved by the use of phenothiazine, and sterility from various causes is constantly studied by research workers, including active work on vitamin deficiencies.—[J. A. Scott Watson, M.C., M.A., J. Roy. Agric. Soc., England, 104, (1943): 1-6, through the courtesy of the British Embassy, Washington, D. C.]

Tissue Culture for Viruses

The cultivation of viruses, though belonging to the field of research, is of great academic importance in any medical activity as a step forward in the advance of medicine. Fluid tissue cultures have been used since 1928, but the effect on tissue viability in the environment (ratio of tissue to fluid), the pH of the medium, and methods of preparing tissues are investigations of recent times. The claim that viruses have been grown in the presence of nonliving material has been disproved.

Three types of mediums were used: (1) serum ultrafiltrate with 2 parts of Simms physiological solution, (2) the physiological solution alone, and (3) diluted serum ultrafiltrate containing a sulfadiazine mixture. All solutions contained 2 to 5 mg. per cent of phenol red for following the pH which was adjusted with 5 per cent of CO₂ after the culture was completed and again whenever there was occasion to open the flask. The tissue consisted of whole minced 9-day old chick embryo. The eyes and claws were removed and the tissues minced and washed.

Equine encephalomyelitis (western strain) tissue-culture virus was used. The effect of various temperatures, the correlation between tissue viability and virus growth, and the addition of a bacteriostatic agent were determined. The study showed that small amounts of embryonic tissue in 2 cc. of serum ultrafiltrate will remain viable at least thirty-five days at room temperature, at least four weeks at 37 C. and three weeks at 4 to 6 C; that numerous cultures can be made from 1 chick embryo without manipulation for the periods designated; and that the addition of sulfadiazine mixture has a slight toxic action on the tissues.

BOOKS

How to Treat Common Ailments of Farm Animals

This booklet is published by the American dairyman's favorite magazine as a first aid to ailing animals (cattle, sheep, swine, horses, poultry, and dogs) with the obvious intention of being as devoid as possible of the miscalculated intrusions on the theory and practice of veterinary medicine in the existing form. Objections to such books belong to a definite period of veterinary history—the period during which a profession of veterinary medicine was being laboriously developed. Railing over such books has been violent but never valid because books on the treatment of animals antedate the forming of a veterinary profession by at least two centuries. Veterinary education and our profession came upon the scene long after books—good and poor—came to the rescue of ailing animals out of necessity. It is we who are the intruders not these books. Happily, as necessity intensified this type of literature, a place was made for trained technicians, for veterinary schools, and veterinary services. Moreover, quite as happily these books gradually yielded ground which they originally attempted to cultivate. Owners of sick animals now go to the telephone instead of to the stock doctor book for help, provided there is a trained doctor available, which in our large country is not always the case. The veterinarian in transforming from "trade to science" faces and handles the facts governing his destiny with the grace of a professional man.

The booklet at hand includes a page on the duration of gestation, two pages on the sequences of dentition in cattle, four full-page color plates on gross, bovine anatomy, and a total of 139 common ailments which the farmer may tinker "before the doctor comes." Obviously, the material was furnished by veterinarians, who commit the publishers to retaining old treatment now requiring revision. Udder infusions for mastitis, barium antimonyl tartrate for gapeworm disease, and phenothiazine for blood-sucking strongyles of horses and sheep, are three among other omissions which should have space in this book. The statement that worms may cause chorea in dogs thus luring the owner of a dog to the drugstore for the prescription recommended for that neurosis bears criticism. Diabetes insipidus, a rare disease of animals is called "a common disease of work horses."

All-in-all, the information and ideas contained will serve their purpose for the dairyman because in so many instances "better employ a

veterinarian to do this" sums up the treatment recommended. That in a nut shell tells the true story of the extent to which college technology has superseded book didacticism in the development of the veterinary service through the centuries.—[*How to Treat Common Ailments of Farm Animals*. By Hoard's Dairyman, 128 pages. Illustrated. Board. W. D. Hoard and Sons Company, Fort Atkinson, Wisconsin. 1942.]

The Hoard's Dairyman Feed Guide

This is the 1943 reprint of a booklet published in 1937 and therefore of great value in debunking the general belief that about all we know of proper livestock feeding is of post-Pearl Harbor origin. The contrary seems to be true for in this booklet one faces the real facts which have brought the feeding of animals into the category of sciences through the bases of sound practices. It gives credit to the knowledge of the experienced as well as to the wisdom of the sage. "The eye of the master fatteneth his cattle," does not yield to the most profound erudition in the feeding of livestock and the growing of most economic forage. A booklet packed with information every veterinarian ought to know and use by authors who seem to live what they write, a summary of a preeminently important subject without a dull paragraph.—[*The Hoard's Dairyman Feed Guide*. By Hoard's Dairyman-Anonymous. Many revealing tables. Illustrated. 124 pages. Board. W. D. Hoard and Sons Company, Fort Atkinson, Wisconsin. 1943.]

This Milk Business

"This Milk Business" is the title of a book by Arthur Guy Enock, London, that assesses the value of milk in the human dietary and particularly, milk not vitiated in production, processing, and distribution. It is a plea for increased consumption, fair return to the farmers, and official regulation that does not unduly advance the retail price, in short a rehashing of an already hackneyed subject. The importance of pasteurization is stressed. Holding milk at 145 to 150 F. for half an hour is preferred to the "flash system" of heating to 162 degrees for fifteen seconds, which damages the food value of milk so treated. "In-bottle" pasteurization for which lower cost is claimed is preferred, provided the bottles have been previously sterilized, but figures on relative costs are omitted as confidential. Superior inspection is rated higher than counting bacteria or depending upon the uncertainties of short-time pasteurization.—[W. D. Tiedeman: "This Milk Business," *Am. J. Pub. Health*, 34, (June 1944): 660.]

THE NEWS

AVMA Activities

Establishment of Registry of Veterinary Pathology at the Army Institute of Pathology, Army Medical Museum, Washington, D. C.

Recently an arrangement was approved by the Surgeon General of the U. S. Army and the Board of Governors of the American Veterinary Medical Association for the establishment and maintenance at the Army Institute of Pathology, Army Medical Museum, Washington, D. C., of a Registry of Veterinary Pathology. This registry will become a unit of the American Registry of Pathology, an organization operating by the authority of the Surgeon General under the sponsorship of the National Research Council.

The purpose of the American Registry of Pathology is comprehensive investigation in certain special fields, which at present comprise: ophthalmic pathology, otolaryngitic pathology, orthopedic pathology, dental and oral pathology, neuropathology, dermatologic pathology, pathology of neoplasms, with special consideration to those of the endocrine glands, the kidney, the urinary bladder, and the lungs. Through close coöperation with various national societies, records and material in these several specialties are brought together at the Army Institute of Pathology for systematic study. The number of specimens received is considerable; for example, there are now available for investigation 4,747 tumors of the urinary bladder and nearly 2,000 malignant melanomas of human eyes. There are also on hand prepared sections of eyes from many different species of animals. All the material and the records of the Registry are available for study to graduate students, specialists, as well as other authorized persons.

For Registry of Veterinary Pathology it is desired to assemble (a) material representing general pathologic anatomy, including vitamin deficiencies, specific diseases of different tissues and organs, and examples of natural and experimentally induced neoplasia; (b) a complete collection of prepared slides representing the normal histology of the different species of animals, including domesticated and wild mammals, birds, and cold-blooded vertebrates, and (c) material illustrating experimentally induced lesions of infectious diseases.

As material accumulates, loan sets of slides

will be made available for study. Similarly, sets of lantern slides will be prepared which pertain to topics of special importance; these also will be available for loan to contributors.

This announcement is for the information of veterinarians and others interested in comparative pathology; it is hoped that they will make full use of the Registry and send to it material deemed of interest for teaching and for the investigation of animal and human diseases. Material submitted should be addressed to: The Director, Army Institute of Pathology, Army Medical Museum (attention: Registry of Veterinary Pathology), 7th and Independence Avenue, S.W., Washington 25, D. C. The director will be glad to furnish further instructions to contributors for submission of material to the Registry of Veterinary Pathology.

SPECIAL COMMITTEE ON REGISTRY OF VETERINARY PATHOLOGY

W. H. FELDMAN, Mayo Foundation, *Chairman.*

CAPTAIN CHARLES L. DAVIS, V.C., Army Institute of Pathology.

HARRY W. SCHOENING, Chief, Pathological Division, U. S. Bureau of Animal Industry.

Member Ex Officio

LT. COL. BALDUIN LUCKÉ, M. C., Deputy Director, Army Institute of Pathology.

[The above named committee was appointed by President C. W. Bower as a special committee of the Association to get the work of the Registry of Veterinary Pathology under way without delay. An amendment to the administrative by-laws has been proposed for action at the annual meeting to make this a standing committee.—EDITOR.]

The cost of the war is staggering only to those who measure their souls with a tape measure.

Group Conferences and Committee Sessions Scheduled for Week of AVMA Convention

In addition to the tentative program printed in the July JOURNAL, the following meetings have to date been scheduled by committee chairmen or by officials of Associations which customarily hold sessions at the time of the annual meeting of the AVMA. All will be held at the Palmer House, Chicago.

Monday, August 21, 1944.

9 a. m.—National Assembly of Chief Livestock Sanitary Officials. C. C. Franks, *secretary-treasurer*. Room No. 7, third floor. All day session; luncheon to be served in room No. 8.

1 p. m.—Committee on Animal Health, National Research Council. George H. Hart, *chairman*. Room No. 3, third floor.

3 p. m.—Committee on Biological Products. H. E. Blester, *chairman*. Room to be assigned.

• • •

Tuesday, August 22.

5 p. m.—AVMA Research Council. E. T. Hallman, *chairman*. Room No. 1, third floor.

8 p. m.—National Association of Federal Veterinarians. W. C. Herrold, *secretary-treasurer*. Room No. 6, third floor.

• • •

Committee on Local Arrangements, 81st Annual Meeting Chicago, Aug. 22-24, 1944



Seated (left to right): Mrs. A. C. Merrick; J. G. Hardenbergh, General Secretary; Mrs. C. L. Miller, Chairman, Women's Auxiliary Activities; H. Preston Hoskins, General Chairman; Mrs. O. Norling-Christensen.

Standing (left to right): C. L. Miller, Entertainment; W. A. Young, Public Relations; O. Norling-Christensen, Alumni Meetings; C. B. Krone, Motion Pictures.

Not present when picture was taken: E. C. Khuen, Banquet; E. E. Sweebe, Exhibits; C. N. Bramer, President's Reception and Dance.

Wednesday, August 23.

5 p. m.—Extension Service Veterinarians, B. J. Killham, *chairman*. Room No. 6, third floor.

• • •

Thursday, August 24.

6:30 p. m.—American Animal Hospital Association. R. E. Ruggles, *secretary*. Dinner session and business meeting, room to be assigned.

• • •

Friday, August 25.

9:00 a. m.—American Animal Hospital Association. Annual session. An all day program will be presented. J. V. Lacroix is *chairman* of arrangements committee. Room to be assigned.

• • •

Other group meetings may be scheduled between now and the time of the meeting.

• • •

RAILROAD AND HOTEL ACCOMMODATIONS SHOULD BE MADE PROMPTLY

Veterinarians planning to attend the annual meeting, and who have not already done so, should complete their travel and hotel arrangements at once. Be sure to secure *round trip* Pullman reservations and *confirmed* hotel reservations.

Fig. 1—An arid "dust bowl" in 1936 taken over for soil preservation and rehabilitation.



Fig. 2—In 1940, this area, seeded to several species of grasses on weed sorghum cover, was transformed into a lush pasture for range cattle. The place of this transformation is Dallam County, Texas.



Where You Been Charlie?

In playing the rôle of inquiring reporter to fill up white space with noteworthy news, it's been a hard job to catch up with Charlie Bower long enough to keep the readers of the JOURNAL informed about his unusual flights, it being generally known that he has given up his large practice better to serve the veterinary profession. So, we asked and here is the answer: 30 addresses as president-elect in the area from East Lansing, Mich., in the east, westward to San Luis Obispo, Calif., thence to Portland, Ore., in the northwest, and southward to Old Mexico; as president, up to this writing (July 15), 76 addresses given at 40 different meetings from Hartford, Conn., southwestward to El Paso, Tex., on to Baton Rouge, La., in the deep south, then northward to Minneapolis, Minn., and the other 36 places in between. The itinerary follows:

AS PRESIDENT-ELECT

- Jan. 2 Los Angeles, Calif.—Southern California Veterinary Medical Association.
- Jan. 4-5 San Luis Obispo—California State Veterinary Medical Association.
- Jan. 10 Manhattan—Kansas Veterinary Medical Association.
- Jan. 25 East Lansing, Michigan—Post-graduate Conference for Veterinarians.
- Jan. 30 Chicago—Address over N.B.C. Farm and Home Hour.
- Feb. 10 Auburn, Ala.—Auburn Veterinary Conference.
- March 6 Wichita—Kansas Livestock Association.
- May 18 Kansas City, Missouri—Kansas City Veterinary Medical Association.
- June 4 St. Louis—St. Louis Veterinary Medical Association.
- June 7 El Paso, Texas—Veterinary Corps, Fort Bliss.
- June 8 Chihuahua City, Mexico—Southwestern States and Republic of Mexico Livestock Sanitary Association.
- June 22 East Lansing—Michigan Veterinary Medical Association.
- July 8 Portland, Ore.—Pacific Northwest Veterinary Medical Association.
- July 14 Pullman, Washington—School of Veterinary Medicine—Addressed students and faculty.
- July 17 Fort Collins—Addressed Jr. AVMA, Colorado State College.
- July 22 Manhattan—Addressed Jr. AVMA, Kansas State College.

AS PRESIDENT

- Oct. 5 Urbana—Illinois Conference.
- Oct. 6-7 Purdue, Indiana—Purdue Short Course.
- Oct. 12 Ames, Iowa—Division of Veterinary Medicine.
- Oct. 14 Cedar Rapids—Eastern Iowa Veterinary Medical Association.
- Oct. 26 Cleveland, Ohio—Western Reserve Medical School.
- Oct. 30 Cincinnati—Southwest Ohio Veterinary Medical Association.
- Oct. 30 Cincinnati—W.L.W. Broadcast.
- Nov. 1 Atlanta, Ga.—Southeast Veterinary Medical Association.
- Nov. 3 Fort McPherson, Ga.—Army Medical Department Seminar.
- Nov. 10-11 Burlington, Iowa—Midwest Small Animal Association.
- Nov. 15-16 Columbia—Missouri Veterinary Medical Association.
- Nov. 20 Wichita—Southwest Kansas Veterinary Conference.
- Dec. 4 Chicago—U. S. Livestock Sanitary Association—AVMA Committee meetings.
- Dec. 15 Lincoln—Nebraska Veterinary Medical Association.
- Dec. 29 Wichita—Kansas Veterinary Medical Association.
- Jan. 2 Philadelphia—Pennsylvania Veterinary Conference.
- Jan. 5 Ithaca, New York—Cornell Conference.
- Jan. 10 Minneapolis—Minnesota Veterinary Medical Association.
- Jan. 11 Chicago—Chicago Veterinary Medical Association.
- Jan. 13 Indianapolis—Indiana Veterinary Medical Association.
- Jan. 14 Chicago—Feed Manufacturers Conference.
- Jan. 20 Springfield—Illinois Veterinary Medical Association.
- Jan. 26 Des Moines—Iowa Veterinary Medical Association.
- Feb. 1 Erie, Pa.—Northeast Pennsylvania Medical Association.
- Feb. 2 Hartford—Joint meeting of Connecticut and New England Veterinary Medical Associations.
- Feb. 2 New York—New York City Veterinary Medical Association.
- Feb. 3 Newark—New Jersey Veterinary Medical Association.
- Feb. 8 Auburn—Alabama Short Course.
- Feb. 16 Baton Rouge—Louisiana Veterinary Medical Association.

- Feb. 24 College Station—Texas A. & M. College, School of Veterinary Medicine.
- Feb. 25 Fort Worth—Texas Veterinary Medical Association.
- March 7 Wichita—Kansas Livestock Association.
- March 14 Manhattan, Kansas—Anaplasmosis Conference.
- June 6 Topeka—Kansas Public Health Association.
- June 14 El Paso—Southwestern States & Republic of Mexico Livestock Sanitary Association.
- June 19 Logan—Utah Veterinary Medical Association.
- June 22 Twin Falls—Idaho Veterinary Medical Association.
- June 26 Columbia—South Carolina Veterinary Medical Association.
- June 28 Raleigh—North Carolina Veterinary Medical Association.
- July 19 Louisville—Kentucky Veterinary Medical Association.

Besides these remarkable activities, executed despite the unfavorable railway situation, President Bower continued as secretary of the Kansas State Veterinary Medical Association, published its yearbook, and in spare time gave some attention to consultant practice, made two trips to Washington in connection with the reclassification of federal veterinarians, attended various committee meetings, and sent telegraphic greetings to state and provincial association meetings which he could not attend in person.

A glance through the programs of the sessions he attended, reveals that not the least service rendered was the wide range of clinical facts presented, naturally accumulated in the line of duty in the state of William Allen White.

Dr. Graham Heads Group to Study Veterinary College Curriculum

President Willard of the University of Illinois has named Robert Graham, head of the department of animal pathology and hygiene, as chairman of a committee to study the organization and curriculum of the veterinary college, establishment of which was unanimously approved by the university board of trustees on June 1, 1944.

Other members of the committee include Dean R. B. Allen, college of medicine; Prof. J. C. Bailar of the chemistry department; Dean R. D. Carmichael of the graduate school; Prof. D. G. Carter, agricultural engineering department; Prof. T. S. Hamilton, division of animal nutrition; Prof. C. G. Hartman, head of the division of biological sciences; Prof. R. R. Hudelson, associate dean of agriculture; Dr. C. C. Morrill and Dr. Jesse Sampson, of the department of animal pathology and hygiene, and Prof. D. W. Tanner, head of the bacteriology department.

The committee will collect information and submit recommendations to Dean H. P. Rusk of the college of agriculture and to the board of trustees of the university.

Cuba Honors Distinguished Veterinarians

The Veterinary College, University of Havana has conferred the degree of Professor Honoris Causa upon Drs. William W. Dimock, Adolph Eichhorn, Nelson S. Mayo, and John R. Mohler of the United States, and upon Dr. Manuel H. Sarvide, of the University of Mexico, in recognition of lifelong work devoted to the advancement of veterinary medicine in the American Continent. Dr. Julio San Martin of the veterinary faculty writes: "In honoring this group of deserving members of the American veterinary profession, the University of Havana and, in a very special manner the veterinary faculty feel themselves highly honored in having their names on our honor roll and by being able to pay public tribute of recognition to men who have devoted their long and fruitful lives to the advancement of veterinary science and public health. We also feel that the University of Havana is contributing to strengthening the bonds of friendship that have always existed between American and Cuban veterinarians, and has perhaps laid the cornerstone of a Pan-American veterinary medical association that should unite all members of the veterinary profession of the Western Hemisphere as a postwar achievement."



Usher in the day when they will be but dusty memories in the wake of our efforts.

Face the battlefields conscious of the aid you are giving the soldiers and sailors fighting for you and your worldly possessions.

Proposed Amendments to Administrative By-Laws

An amendment relative to the reorganization of the Committee on Education has been submitted in accordance with section 3, article XIII, of the Administrative By-Laws, which reads:

Section 3.—Excepting sections affecting the corporate officers provided in the constitution, the administrative by-laws may be permanently amended at any annual session by submitting, in writing, notice thereof to all the membership ninety days prior to the annual session at which final action is to be taken. Publication of proposed amendments in three consecutive issues of the JOURNAL shall be regarded as due notification to the members.

Proposal: Amend article XII, section 1.—“2. Committee on Education” so that it will read as follows:

a) Personnel.—This committee shall consist of seven members appointed by the president at the rate of one member per year, each to serve for a term of seven years. One member of the committee shall be appointed from each of the following branches of veterinary science; (1) teaching staff of a veterinary college accredited by the association, (2) federal veterinary service, (3) United States Army Veterinary Corps, (4) large animal practice, (5) small animal practice, (6) fulltime research in an educational institution of higher learning, (7) public health service. This committee shall elect a chairman and a secretary who will each serve for two years, or until their successors are elected and qualified. In the event of a vacancy resulting from death, resignation or disqualification from any cause, the president shall fill such vacancy by appointment of a successor from the same classification to serve the unexpired term.

b) Duty.—It shall make at least a biennial inspection of all accredited veterinary colleges to investigate veterinary education, including preveterinary, undergraduate and graduate study, enrollment, clinics, physical plant, equipment and faculty; suggest means and methods for improvement of the same and cooperate with the college officials in realization of these objectives in progressive, higher educational standards; and upon request, examine veterinary colleges seeking accreditation by the Association. A copy of such inspection, report, and suggestions shall be sent to the dean of the veterinary

school and to the president of the college or university.

c) It shall submit annually a list of such colleges as are recommended for accreditation by the Association and make a report on the status and needs of veterinary education as conducted in the existing veterinary colleges; on the relation of veterinary education to animal production; and on the number of qualified veterinarians required to maintain a competent veterinary service.

PROPOSED REWORDING OF FOREGOING AMENDMENT

Following publication of the foregoing proposed amendment in the May, 1944, JOURNAL, the following rewording has been proposed in subparagraph (a):

Second sentence: “One member of the committee shall be appointed to represent each of the following branches of veterinary science” instead of “from each of the following branches,” etc.

(1) “the basic sciences in the veterinary curriculum” instead of “teaching staff of a veterinary college accredited by the Association.”

(4) “large animal clinical medicine and surgery” instead of “large animal practice.”

(5) “small animal clinical medicine and surgery” instead of “small animal practice.”

(6) “animal disease research” instead of “fulltime research in an educational institution of higher learning.”

At present, this part of the administrative By-Laws reads as follows:

a) Personnel.—This committee shall consist of five members appointed by the president at the rate of one member per year, each to serve for a term of five years. Not less than three members of this committee shall be members of the teaching staffs of veterinary colleges accredited by the Association but no two members shall be of the same faculty or graduates of the same veterinary college.

b) Duty.—It shall make an annual report on the status and needs of veterinary education as conducted in the existing veterinary colleges; on the relation of veterinary education to animal production; and on the number of qualified veterinarians required to maintain a competent veterinary service for the American people. When deemed necessary, the committee is authorized to inspect veterinary colleges and submit annually a list of such colleges as should be accredited by the Association.

AMENDMENTS PROPOSED LAST YEAR FOR ACTION THIS YEAR

Two proposals were submitted at the annual meeting in 1943, which will come before the House of Representatives for action this year. One is to amend the Constitution, the other to amend the Administrative By-Laws.

Proposal No. 1: Amend article II of the Constitution to read as follows:

"The objectives of the Association shall be to advance the science and art of veterinary medicine, including their relationship to the public health."

Proposal No. 2: Amend article IX, section 3, subparagraph (b), section 4, subparagraph (d) and section 5 so as to change the words:

"National Association of Bureau of Animal Industry Veterinarians" to "National Association of Federal Veterinarians" wherever the former designation, or abbreviations thereof, occur.

Additional Proposed Amendment

Amend Article XII, "Committees—Standing and Special" by adding the following:

11. COMMITTEE ON REGISTRY OF VETERINARY PATHOLOGY

a) Personnel.—This committee shall consist of three members, one of whom shall be appointed annually by the president for a term of three years. The first membership shall be appointed for one, two and three years, respectively, for terms expiring in the same order. The president shall appoint the chairman.

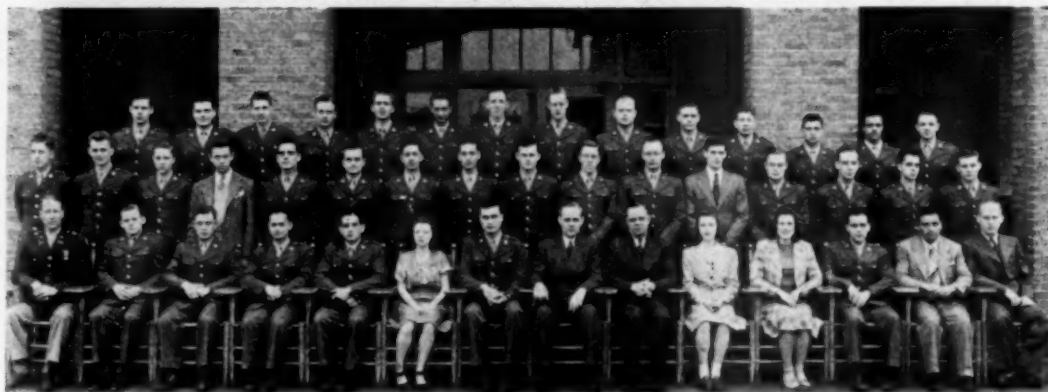
b) Duties.—It shall be the duty of this committee to collaborate with the proper officials in the establishment and maintenance of a registry of veterinary pathology in the Army Medical Museum. The committee shall, from time to time, make recommendations for the conduct of this work, on the part of the Association, for the purpose of developing the scope and usefulness of the registry.

(Note: This amendment is submitted to implement an arrangement with the Army Medical Museum, already approved by the Surgeon General of the Army and the AVMA Board of Governors. A special committee has been appointed by President Bower to carry on the development of the registry pending the approval for a standing committee as proposed in the amendment.)

New York State Veterinary College

Cornell University, Ithaca, N. Y.

Class of June, 1944



First row (left to right): Capt. C. Sturm, R. K. McEvoy, D. D. Delahanty, M. L. Povar, D. T. Berman, Miss F. E. Keith, D. T. Baker, Acting Dean M. G. Fincher, Dean W. A. Hagan, Miss A. H. Gott, Miss J. M. Neubecker, D. E. Lawrence, J. Santivanex, J. G. Flint.

Second row (left to right): E. P. Clement, D. A. Tillou, C. M. Haller, J. C. O'Dea, J. P. Sayres, R. R. Basom, F. A. Lockwood, G. E. Rappaport, K. McEntee, F. A. Erb, W. G. Hoag, H. W. Patton, C. W. VanDeusen, T. C. Vaughn, W. C. Maker, W. P. King.

Third row (left to right): H. C. Leonard, E. V. Morse, J. Bentinck-Smith, C. S. Young, D. B. Porter, R. J. Byrne, R. G. Whitehead, L. E. Moore, Jr., C. J. Holden, C. E. Hartley, A. E. Davis, I. S. Rossoff, C. R. Robinson, W. B. Lukens.

Not present, A. Lipman.

Can You Help Locate These Members?

The aid of JOURNAL readers is solicited in locating the following members, mail to whom has been returned to the Association's central office. The last known address of each is given. Should you be able to provide information as to present residence, your advice *via* postcard or letter will be greatly appreciated.

- Aasen, Stephen W., Marshfield, Ore.
 Bird, A. G., Veterinary Insp., Dept. of Health, Santurce, P. R.
 Booth, Thomas E., 5 Charles St., White Plains, N. Y.
 Bowie, B. S., Nimmons, S. Car.
 English, Burt W., 23rd Veterinary Station Hosp., Ft. Bliss, Texas.
 Gollehon, C. W., c/o Station Hosp., Salinas A.A.B., Salinas, Calif.
 Moughon, William C., Box 609, El Campo, Texas.
 Rodgers, Robert J., General Delivery, Smithville, Texas.
 Rubenstein, Abraham M., 1251 Euclid Ave., Miami Beach 30, Fla.
 Siver, Dougal, 429 Wrightwood Ave., Chicago, Ill.
 Sledge, J. L., 3708 8th St., Meridian, Miss.
 Stein, A. J., 321 S. Adams, Monte Vista, Colo.
 Thompson, Judson, 437 13th St., Windom, Minn.
 Traskus, Anthony D., 240 N. Main St., Pittston, Pa.
 Trundy, Edward L., General Delivery, Winthrop, Me.
 Tyler, Lindy, 805 Burlingame Ave., Burlingame, Calif.
 Vail, John I., Swift & Co., Jacksonville, N. Y.

APPLICATIONS

The listing of applicants conforms to the requirements of the administrative by-laws—Article X, Section 2.

First Listing

- COMBS, ARTHUR W.
 712 Buckley St., Fostoria, Ohio.
 D.V.M., Cornell University, 1911.
 Vouchers: O. B. Hess and R. N. Birdwhistell.
 JOSE, ALICE FULVIO
 Secretaria de Agricultura, Cidade do Salvador, Bahia, Brazil, S. A.
 M.V., Escola Nacional de Veterinaria, 1938.
 Vouchers: A. V. Machado and R. DeSouza.
 MURRAY, JOHN A.
 2065 Robinson St., Regina, Sask., Can.
 B.V.Sc., Ontario Veterinary College, 1940.
 Vouchers: J. E. Horsland and E. A. Willick.
 SWANEY, FRANK C.
 2921 N. Downer Ave., Milwaukee 11, Wis.
 M.D.C., Chicago Veterinary College, 1908.
 Vouchers: C. Houston and J. S. Healy.
 SWARTHOUT, EDWARD W.
 P. O. Box 261, Victoria, Texas.
 D.V.M., Texas A. & M. College, 1939.

- Vouchers: D. J. Anderson and L. G. Cloud.
 WANN, RUSSELL S.
 Hdqs. 5th Port, APO 506-c/o P.M., New York, N. Y.
 D.V.M., Alabama Polytechnic Institute, 1934.
 Vouchers: H. J. Robertson and S. E. Bunton.

Second Listing

- Allen, James H., 4th S. C. Veterinary Detch., Camp Forest, Tenn.
 Barnes, F. E., P. O. Box 594, Newman, Calif.
 Harkins, Curtis I., P. O. Box 651, Suffolk, Va.
 Hodges, Thomas F., 1267 N. 41th St., East St. Louis, Ill.
 Hourrigan, James L., 217 Capitol Bldg., Phoenix, Ariz.
 Jackley, John G., P. O. Box 405, Fresno 8, Calif.
 Kraus, William E., Veterinary Station Hosp., Ft. Sam Houston, Texas.
 Nelson, M. R., Peterson, Iowa.
 Richardson, L. W., Ft. Scott, Kansas.
 Schofield, Earle F., Box 578, Greenwich, Conn.
 Tenney, Forrest F., 35 Pine St., Peterboro, N. H.

1944 Graduate Applicants

First Listing

The following are graduates who have recently received their veterinary degrees and who have applied for AVMA membership under the provision granted in the Administrative By-Laws to members in good standing of junior chapters. Applications from this year's senior classes not received in time for listing this month will appear in later issues. An asterisk (*) after the name of a school indicates that all of this year's graduates have made application for membership.

Colorado State College

- McNAMARA, JAMES H., D.V.M.
 Versailles, Ky.
 Vouchers: K. W. Smith and J. Farquharson.

Cornell University*

- BAKER, DEWITT T., D.V.M.
 R.D. No. 4, Ithaca, N. Y.
 Vouchers: H. J. Milks and H. C. Stephenson.
 BASOM, RICHARD R., D.V.M.
 R.F.D., Corfu, N. Y.
 Vouchers: M. G. Fincher and H. C. Stephenson.
 BENTINCK-SMITH, JOHN, D.V.M.
 Co. B., Hdqs. 2 Central Ave., Quarters 4, Ithaca, N. Y.
 Vouchers: Peter Olafson and H. J. Milks.
 BERMAN, DAVID T., D.V.M.
 181 Hawthorne St., Brooklyn, N. Y.
 Vouchers: M. G. Fincher and Peter Olafson.
 BYRNE, ROBERT J., D.V.M.
 23 Albert St., Middletown, N. Y.
 Vouchers: D. W. Baker and H. L. Gilman.

- CLEMENT, EDWIN P., D.V.M.
32 Lincoln Ave., Cortland, N. Y.
Vouchers: H. C. Stephenson and H. J. Milks.
- DAVIS, ARTHUR E., D.V.M.
Olivebridge, N. Y.
Vouchers: A. Zeissig and H. C. Stephenson.
- DELAHANTY, DONALD D., D.V.M.
6-08 127th St., College Point, N. Y.
Vouchers: J. N. Frost and A. G. Danks.
- ERR, FREDERICK A., D.V.M.
R.F.D. No. 2, Hudson, N. H.
Vouchers: A. G. Danks and H. C. Stephenson.
- FLINT, JACK, D.V.M.
400 Triphammer Rd., Ithaca, N. Y.
Vouchers: A. G. Danks and H. C. Stephenson.
- GOTT, ANNE H., D.V.M.
Morrell Rd., Pittsford, N. Y.
Vouchers: H. C. Stephenson and Peter Olafson.
- HALLER, CLYDE M., D.V.M.
LaFargeville, N. Y.
Vouchers: E. Sunderville and H. C. Stephenson.
- HARTLEY, CLINTON E., D.V.M.
158 E. Main St., Amsterdam, N. Y.
Vouchers: D. H. Udall and W. J. Gibbons.
- HOAG, WARREN G., D.V.M.
Roxbury, Delaware Co., N. Y.
Vouchers: A. G. Danks and H. J. Milks.
- HOLDEN, CHESTER J., D.V.M.
5 W. Grimsby Rd., Kenmore, N. Y.
Vouchers: H. L. Gilman and B. B. Birch.
- KEITH, FLORENCE E., D.V.M.
Oswago Dr., Greenlawn, N. Y.
Vouchers: H. C. Stephenson and P. P. Levine.
- KING, WILLIAM P., D.V.M.
4 Orchard Pl., Beacon, N. Y.
Vouchers: A. G. Danks and H. C. Stephenson.
- LAWRENCE, DAVID, D.V.M.
1760 Union St., Brooklyn, N. Y.
Vouchers: W. J. Gibbons and H. C. Stephenson.
- LEONARD, HARMON C., D.V.M.
Cook Hill, Wallingford, Conn.
Vouchers: J. N. Frost and H. C. Stephenson.
- LIPMAN, ARTHUR, D.V.M.
1127 Fourth St., Portsmouth, Va.
Vouchers: H. C. Stephenson and M. G. Fincher.
- LOCKWOOD, FLOYD A., D.V.M.
210 Williams St., Ithaca, N. Y.
Vouchers: H. C. Stephenson and J. W. Richards, Jr.
- LUKENS, WALTER B., D.V.M.
12 W. Prospect Ave., Middletown, N. Y.
Vouchers: D. W. Baker and A. G. Danks.
- MCENTEE, KENNETH, D.V.M.
Oakfield, N. Y.
Vouchers: A. M. Mills and M. G. Fincher.
- MCVOY, RICHARD K., D.V.M.
Preble, N. Y.
Vouchers: A. G. Danks and J. N. Frost.
- MAKER, WILBER C., D.V.M.
P. O. Box 132, Reed's Ferry, N. H.
Vouchers: J. N. Frost and H. C. Stephenson.
- METTLER, JOHN J. JR., D.V.M.
Hillsdale, N. Y.
Vouchers: J. N. Frost and H. C. Parker.
- MOORE, LLOYD E. JR., D.V.M.
344 Locust Ave., Amsterdam, N. Y.
Vouchers: L. E. Moore and J. L. McAuliff.
- MORSE, ERSKINE V., D.V.M.
c/o Mrs. W. A. Foster, Scarswold Apts.,
Scarsdale, N. Y.
Vouchers: L. A. Fortune and M. G. Fincher.
- NEUBECKER, JEANNE M., D.V.M.
2514 Cortelyou Rd., Brooklyn, N. Y.
Vouchers: C. E. Hayden and H. H. Dukes.
- O'DEA, JOSEPH C., D.V.M.
Gardner, Ulster Co., N. Y.
Vouchers: H. C. Stephenson and A. G. Danks.
- PATTON, HERBERT W., D.V.M.
695 Dryden Rd., R.D. No. 2, Ithaca, N. Y.
Vouchers: J. N. Frost and A. G. Danks.
- PORTER, DAVID B., D.V.M.
55 Stanley St., Mount Morris, N. Y.
Vouchers: A. G. Danks and H. C. Stephenson.
- POVAR, MORRIS L., D.V.M.
1031 Neill Ave., New York, N. Y.
Vouchers: Peter Olafson and W. J. Gibbons.
- RAPPAPORT, GEORGE E., D.V.M.
39 Vaughn Ave., New Rochelle, N. Y.
Vouchers: A. G. Danks and H. C. Stephenson.
- ROBINSON, CHARLES R., D.V.M.
15 Walnut St., Madison, N. J.
Vouchers: E. R. Cushing and H. C. Stephenson.
- ROSSOFF, IRVING S., D.V.M.
1812 Gleason Ave., The Bronx, 60, N. Y.
Vouchers: H. C. Stephenson and Peter Olafson.
- SAYRES, JOSEPH P., D.V.M.
E. Main St., Box 183, Peekskill, N. Y.
Vouchers: H. J. Milks and H. C. Stephenson.
- TILLOU, DONALD A., D.V.M.
240 Long Ave., Hamburg, N. Y.
Vouchers: A. G. Danks and H. C. Stephenson.
- VAN DEUSEN, CARLISLE W., D.V.M.
46 Ft. Covington St., Malone, N. Y.
Vouchers: A. G. Danks and J. N. Frost.
- VAUGHN, THURMAN C. JR., D.V.M.
Greenville, N. Y.
Vouchers: A. G. Danks and H. C. Stephenson.
- WHITEHEAD, ROLAND G., D.V.M.
Monroe, N. Y.
Vouchers: H. J. Milks and J. N. Frost.
- YOUNG, CLAYTON S., D.V.M.
Randolph, N. Y.
Vouchers: Peter Olafson and J. N. Frost.

Texas A. & M. College

- BROWN, JOSEPH H. JR., D.V.M.
1209 Bowle, Amarillo, Texas.
Vouchers: R. P. Marsteller and L. M. Griffin.

KING, J. S., D.V.M.
c/o Veterinary Hosp., College Station, Texas.
Vouchers: R. P. Marsteller and J. H. Milliff.
VEZEY, STANLEY A., D.V.M.
Box 247, Faculty Exchange, College Station,
Texas.
Vouchers: R. P. Marsteller and J. H. Milliff.

Washington State College

BOE, S. LUTHER, D.V.M.
Rt. 11, Box 930, Milwaukee, Ore.
Vouchers: E. E. Wegner and J. E. McCoy.

Second Listing

Alabama Polytechnic Institute

Stone, Price, D.V.M., Hurtsboro, Ala.

Ontario Veterinary College

Fritz, LeRoy C., B.V.Sc., Silver Creek, N. Y.

Texas A. & M. College

Anderson, Alonzo A., D.V.M., 528 Eleventh St.,
Evanston, Wyo.
Barnes, Charles M., D.V.M., Box 386, Spur,
Texas.
Bott, Anthony R., D.V.M., Box 794, College Sta-
tion, Texas.
Brennan, Frank M. Jr., D.V.M., Box 360, Rt. 1,
Fontana, Calif.
Brooks, William G., D.V.M., Jefferson, Texas.
Brown, Robert L., D.V.M., 1209 Bowie, Amarillo,
Texas.
Corley, Glenn P., D.V.M., Bentonville, Ark.
Cross, James L., D.V.M., 3 N. Sixth St., Temple,
Texas.
Edmondson, Alan H., D.V.M., 240 N. Mentor
Ave., Pasadena, Calif.
Plateau, Harry J., D.V.M., 943 Bandera Rd.,
San Antonio, Texas.
Garrett, Robert M., D.V.M., Rt. 2, Conroe, Texas.
Grimes, George E., D.V.M., 3108 Willing, Ft.
Worth, Texas.
Hogge, Arthur L. Jr., D.V.M., Rt. 2, McKinney,
Texas.
Huddleston, C. H., D.V.M., P. O. Box 582, Sa-
binal, Texas.
Johnson, Donald F., D.V.M., Box 1162, Brady,
Texas.
Laskey, Herbert H., D.V.M., 2629 28th St., San
Diego 4, Calif.
Lichty, Dwight L., D.V.M., Box 52, Woodstock,
Ill.
Lindley, Ries R., D.V.M., 2226 N. 3rd St.,
Abilene, Texas.
Livingston, Price S., D.V.M., Box 86, Sherman,
Miss.
Martin, Harrison S., D.V.M., 204 Sharkey Ave.,
Clarksdale, Miss.
Morin, Robert L., D.V.M., 215 N. Jackson, Clin-
ton, Ill.
Neal, Fred C. Jr., D.V.M., 104 N. E. 16th, Okla-
homa City, Okla.

Nicholson, Kenneth G., D.V.M., 1838 E. Nock St.,
Milwaukee 7, Wis.
Nugent, George C. Jr., D.V.M., 137 Eastern Ave.,
Gloucester, Mass.
Oldham, Clyde C. Jr., D.V.M., Box 1337, Abilene,
Texas.
Phillips, Warren A., D.V.M., 92 Maple St.,
Winchendon, Mass.
Rawls, Thomas A., D.V.M., 2760 Arts St., New
Orleans, La.
Riley, William E., D.V.M., 910 Cole St., Bryan,
Texas.
Sealy, Roscoe O., D.V.M., 2039 W. Gramercy,
San Antonio, Texas.
Smith, Augustus M., D.V.M., Snowflake, Ariz.
Tiner, Jack D., D.V.M., 141 Fairview, San An-
tonio 4, Texas.

U. S. GOVERNMENT

**Mexican-United States Agricultural Commis-
sion.**—Claude R. Wickard, Secretary of Agri-
culture in addressing the opening session of
the above named commission at Mexico City,
July 4, 1944, stressed the close relationship
that has existed for many years in the two
countries between the veterinarians and other
scientists, since (quoting): "With our long
common frontier, an outbreak of animal dis-
ease on one side of the border is watched with
interest and apprehension by livestock men
and agricultural authorities on the other. Any
assistance which either nation can give the
other in stamping out diseases is not only an
act of friendship toward a neighbor but also
self-protection. Animal diseases, like plant
diseases and insect pests, recognize no inter-
national boundaries and need no transports."

"The recent cooperative work in combating
scabies of cattle in Chihuahua and the present
efforts by veterinarians of both countries to
eradicate dourine of horses of the border re-
gion of Sonora are two outstanding examples
of collaboration. The United States veteri-
narians who work on such projects not only
have the privilege of helping check a threat
to livestock of their own country; they also
have the opportunity of obtaining valuable in-
formation from their Mexican associates."

• • •

**British Veterinarian Studies American
Methods.**—"Dr. J. N. Ritchie, superintending
veterinary inspector, Ministry of Agriculture,
London, England, is now (*Federal Veterinarian*,
Jan. 1944) in the United States for the purpose
of making observations of methods followed in
the control and eradication of infectious dis-
eases of livestock. He is particularly inter-
ested in the work conducted in connection with
tuberculosis and brucellosis. Dr. Ritchie spent
several days in Washington, D. C. and will

visit a number of Bureau field stations, conferring with inspectors in charge and state officials." Dr. Ritchie returned to Washington a short time ago and then left for Canada from which country he will return to his home in London.

s/A. E. Wight, Washington, D. C.

AMONG THE STATES

Australia

Australian Association.—A letter from Honorary Secretary Grahame Edgar of the Australian Veterinary Association, dated April 27, 1944 announced that the twenty-first annual general meeting of the Association would be held at the University of Sidney, N. S. W., May 31, 1944. Enclosed was a panel of the agenda and a report of the annual meeting of 1943, held at the same place in October. A study of these two documents proves that the Australian veterinary problems are comparable to our own, including the insufficiency of veterinarians amid general populations who are subordinated unaware by their domestic animal resources but who fail to assess the fact until war threatens national survival. So, we find our Australian colleagues, like ourselves, soberly concerned over publicity, rural reconstruction, veterinary education, and the mastering of livestock plagues. What a chore in the absence of popular demand and encouragement!

The 1943 meeting drew an audience of 74 members, 2 associates, and 5 students. Colonel Cowherd, Majors Crawford and Kerman, and Captain Eland of the U. S. Army Veterinary Corps are listed among those present.

Topics of a basic nature seen in the report of this convention, namely, parasites, brucellosis, sterility, tuberculosis, calf mortality, poultry, pigs, nutrition, and progeny testing, show how alike veterinary work is the world over. Further proof of this prevailing similarity is shown in the consideration given such problems as manpower, motor fuel, tires, motor repairs, welfare of practitioners, research on animal production, extension work, departmental veterinarians to treat individual animals in rural communities, the declining number of veterinarians in Australia, nationalization and subsidization of the veterinary service, graduate and undergraduate veterinary education, clinical training in the colleges as in the earlier days, improvement of meat inspection to conform with trade requirements of foreign countries, a pure milk supply, improvement of rural abattoirs, outbreaks of milk-borne typhoid, pasteurization, vital statistics on animal diseases, and food production, a forefront problem. These problems are com-

mon to all countries and intelligent populations dream of security with little conception of its source—domestic animals.

Dutch Guiana (or Surinam)

Dr. J. Frickers (Utrecht, '27), government veterinarian for Surinam is on a six months leave of absence which he is spending in the United States. His address in New York is c/o Hotel Hargrave, 112 W. 72nd St.

Idaho

Idaho Veterinary Medical Association.—The summer meeting of the state Association was held June 22-23, 1944, at the Park Hotel, Twin Falls. The following technical program was presented:

Scott B. Brown, Boise: "How the Veterinary Profession is Aiding in the War Effort."

J. E. McCoy, Pullman, Wash.: "Calf Scours and the Use of Acidophills Milk in the Treatment."

J. D. Ray, Omaha, Nebr.: "Swine Erysipelas."

Chas. W. Bower, Topeka, Kan., president of the AVMA: "Canine Distemper and Encephalitis." "Colored Motion Picture Film of Surgical Procedures in Small Animal Practice."

Ray V. Swanson, Pocatello: "A Recent Outbreak of Bacillary Hemoglobinurea in Idaho."

Glenn Holm, Moscow: "The Newer Knowledge of Poultry Diseases."

O. W. Schalm, University of California, Berkeley: "Recent Developments in the Study of Gangrenous Mastitis." "Rapid Milking and Its Effect on Mastitis." "Diagnosis, Control, and Treatment of Chronic Mastitis."

The animal clinic was in charge of J. E. McCoy. K. K. Shott was elected delegate to the next meeting of the AVMA, S. B. Brown, alternate. The officers elected for the next two years are J. D. Lee, *president*; M. Grootes, *vice-president*; and Phil H. Graves, *secretary-treasurer*. F. F. Fisher, L. V. Ruebel, and Paul S. Hannah were appointed to the executive board.

s/PHIL H. GRAVES, *Secretary-Treasurer*.

Illinois

Tuberculosis, incidence and mortality, is reported by the State Department of Health to be increasing in spite of the prewar trend downward according to the *Chicago Daily News* which predicts that next year conditions will be more severe. The disease is particularly grave among Negroes in industrial areas and the increase is attributed to the fluidity of the population—the maintenance of manpower in the war industries.

• • •

Distinguished Illinois Scientist.—Albert L. Elder, Ph.D., who is credited with having developed the program of penicillin production while serving as a coordinator for the War Production

Board is an alumnus of the University of Illinois, born at Lexington, a townsman and friend of the lamented W. H. Welch, past president of the AVMA. He taught chemistry at Oberlin and was teaching at Syracuse when claimed for his talent by the WPB. An article by him in the *Scientific Monthly* for June gives a true account of the "miracle drug," penicillin.

Chicago Association.—The March meeting was distinguished by the presence of President-Elect Farquharson of the AVMA, who gave one of his classical lectures on surgery with the aid of the color films which he has made famous in the teaching of veterinary surgery. The society also discussed at length the proposal of amending the State Veterinary Practice Act in respect to rejecting applicants other than graduates of recognized colleges, and adopted a plan for presenting such an amendment to the next general assembly.

Iowa

Honor Prominent Meat Packer.—T. Henry Foster, longtime prominent in the nation's meat packing industry and president of John Morrell & Co., of Ottumwa, Iowa, oldest and



T. Henry Foster
President, John Morrell & Company

fifth largest interest in that field, was the honored guest at a dinner meeting (June 15) celebrating his fiftieth anniversary with that company. President Foster has seen his company grow from a small, local packing plant to a 200 million dollar concern, operating from coast to coast. In the social whirl, he is a member of the Country Club, Chamber of Com-

merce, and Rotary Club of Ottumwa, the Union League and University clubs of Chicago and a curator of the State Historical Society of Iowa. In literary circles, he is a well-known collector and connoisseur of rare books. His messages to the veterinary profession have long been appreciated.

Dr. Biester Appointed Chairman Veterinary Research Institute.—News comes from Ames, Iowa, that Dr. H. E. Biester, professor of veterinary research, Iowa State College, has been appointed chairman of the Veterinary Research Institute of that college, effective July 1, 1944. Dr. Biester is particularly well qualified to act in this capacity. Dr. H. D. Bergman continues as director of the Research Institute.

Maine

State Association.—Meetings have been held in January, April, and July. October is the next scheduled meeting. The April meeting was featured by a display of radiographs by S. W. Stiles of Falmouth Foreside, and a talk and demonstration on artificial insemination by J. F. Witter of Orono. The collection, dilution, examination, and preservation of semen as practiced by artificial breeding associations and sterility in the bovine species were discussed. P. R. Baird of Waterville showed the motion picture on skin diseases of dogs ascribed to *Alternaria tenuis*. C. M. Merrill of South Paris spoke on uterine medication in cows, stressing gentle handling and cleanliness, and the use of sulfonamides, urea, and charcoal in this connection.

The July meeting was held at R. E. Whitcomb's hospital in Belfast where a business meeting, clinic, card party for the ladies, and a "lobster banquet" were held. (Lobsters? There ain't no such animal.—Ed.) R. W. Smith, popular state veterinarian of New Hampshire, was the main speaker.

The present officers of the Maine association are: R. E. Whitcomb, Belfast, *president*; E. C. Moore, Lewiston, *vice-president*; and S. D. Merrill, South Paris, *secretary-treasurer*.—*Excerpts from Quarterly News Letter, Maine Veterinary Medical Association.*

Minnesota

AMA Gold Medal to Feldman and Associates for Exhibit.—William H. Feldman, D.V.M. (Colo. '17), H. Corwin Hinshaw, M.D., and Frank C. Mann, M.D., Mayo Foundation, Rochester, Minn., were awarded the gold medal in Group I of the Scientific Exhibits at the annual convention of the American Medical Association in Chicago, June 12-16, 1944. The award was made for their exhibit on Chemotherapy of Tuberculosis. Awards in Group I are made for exhibits of individual investiga-

tion, which are judged on the basis of originality and excellence of presentation.

Dr. Feldman has been on the staff of the Mayo Foundation since 1927 and is widely known in medical and veterinary fields, especially for his work on neoplasms of lower and domesticated animals, and the pathology and chemotherapy of tuberculosis.

Missouri

Missouri Veterinary Medical Association.—One hundred veterinarians attended the Association's annual summer meeting held June 26-27, 1944, at Jefferson City.

The following program was presented:

W. R. Krill, Ohio State University: "Large Animal Obstetrics." "General Cattle Practice Problems."

R. C. Klussendorf, Columbus, Wisconsin: "Bovine Mastitis, A Practitioner's Problem."

James Farquharson, Ft. Collins, Colo.: "Surgical Operations Discussed and Demonstrated with Motion Pictures."

Cecil Elder, Missouri College of Agriculture: "The Control of Internal Parasites in Sheep."

Ashe Lockhart, Kansas City: "The Treatment of Exposed Animals."

P. J. Meginnis, Champaign, Ill.: "Small Animal Work in General Practice."

J. L. Jones, Blackburn: "Symposium on Swine Diseases."

The following officers were elected to serve during 1944: J. P. Miller, Boonville, *president*; F. L. Seevers, Pleasant Hill, *vice-president*; J. L. Wells, Kansas City, *secretary-treasurer*.

s/J. L. WELLS, *Secretary-Treasurer*.

New York

Veterinary Medical Association of New York City.—On June 7, 1944, the Association held its meeting in the Hotel New Yorker. The meeting was called to order by B. J. Finkelstein. A. C. Goss introduced the speaker, E. Robert Marchini, bacteriologist and assistant department head, Penicillin Unit, Lederle Laboratories, Inc., Pearl River. His subject was "Penicillin."

The following guests were present: William Hayes, Jericho, Asedo, B. A. Linden, William Fleischman, Ernest S. Tierkel, Captain Fagan, and Miss Florence Harden.

s/C. R. SCHROEDER, *Secretary-Treasurer*.

• • •
The Biological Photographic Association.—This is a nonprofit society for the advancement of medical, dental, and biological photography. It will hold its fourteenth annual meeting at Binghamton, Sept. 8-9, 1944. Besides technical papers by outstanding figures in that field, a salon of distinguished pictures by leading biological photographers will be a feature.

North Carolina

State Association.—The 43rd annual meeting was held at Raleigh June 28-29, 1944, President C. D. Grinnells in the chair. Mayor Graham H. Andrews of Raleigh gave an address of welcome and E. F. Boyette of Smithfield responded. The following program was announced:

B. C. McLean, Aiken, S. C.: "Lameness in the Horse and Mule."

H. M. Stamey and L. I. Case, Extension Service, North Carolina State College: "Horse and Mule Clinics in North Carolina."

J. L. Hopping, Atlanta, Ga.: "Diseases of the Horse and Mule Subsequent to Shipping."

D. E. Brady, Associate Professor of Animal Husbandry, State College: "Handling of Live-stock Previous to Slaughter."

E. A. Davis, Columbus, Ga.: "Anesthesia in Cattle." "Sterility and Obstetrics in Dairy Cattle."

Vilo T. Rose, Elkton, Ky.: "Surgical Procedures in Cattle Practice." "Problems of the Practitioner in Cattle Practices."

Charles W. Bower, Topeka, Kan., President of the American Veterinary Medical Association: "Rabies and its Relation to Public Health."

C. Edwin Hoffman, Suffolk, Va.: "Forage Poisoning from a Practitioner's Viewpoint."

Guy A. Railsback, field representative, Cutter Laboratories, Chicago: "The Hog-Cholera Vaccines, B.T.V. and Crystal Violet."

A clinic was held at the Livestock Pavilion, State College, guest speakers acting as the clinicians. Members of the Ladies Auxiliary attended the opening session, held a business session, and were served a luncheon at the home of Dr. and Mrs. Wm. Moore on the 29th. The officers of the Auxiliary are: Mrs. C. E. Nicks, Elkin, *president*; Mrs. B. H. Staton, Rocky Mount, *vice-president*, and Mrs. F. B. Coates, Reidsville, *secretary*.

s/J. H. BROWN, *Secretary-Treasurer*.

Ohio

Dr. R. E. Rebrassier, head of the Department of Parasitology, Ohio State University, was the guest speaker over station WLW on the "Keep 'em Healthy Series" of Everybody's Farm Hour, Saturday, June 24, 1944, 12 to 1 p.m. His subject was "Farm Parasites."

Oklahoma

State Association.—The summer meeting of the Oklahoma Association convened at the Hotel Youngblood, Enid, June 19, 1944, with an

attendance of fifty. The following program was presented:

James Farquharson, Ft. Collins, Colo., president-elect of the AVMA: "Surgical Techniques" demonstrated with motion pictures.

Capt. H. O. James, V.C., U.S.A.: "Observations on Egg Inspections under Army Veterinary Corps."

Major Norton A. Orr, V.C., U.S.A.: "Produce Inspection by Army Veterinary Corps." Captain James and Major Orr are stationed at Enid.

A. H. Quin, Kansas City, Mo.: "New Developments in Veterinary Therapeutics and Practice."

The winter meeting will be held at the Hotel Skirvin, Oklahoma City, Jan. 8-9, 1945.

s/J. B. CORCORAN, *Secretary-Treasurer*.

• • •
S. D. Haworth, Jr. (A.P.I., '41), inducted as a private in Feb. 9, 1943 was commissioned a 1st Lieutenant in the Veterinary Corps Feb. 28, 1944, and after a course of special training at the service school at Carlisle Barracks he was promoted to a captain and sent to a port of embarkation for foreign duty.—*Daily Oklahoman*.

Ontario

Provincial Conference and Meeting.—The teaching staff of the Ontario Veterinary College collaborating with the Ontario Veterinary Association held a conference at Guelph on the prevention and control of livestock diseases, autopsy, laboratory demonstrations, and small animal surgery, July 4-6, 1944. Principal C. D. McGilvray of the college acted as chairman. The sponsors announced the following program:

R. A. McIntosh: "Sulfonamides in Veterinary Medicine."

H. T. Batt: "The Determination of Sex."

C. R. Riley: "A System of Bookkeeping for the Veterinarian."

V. R. Brown: "Clinical Aspects of Fetal Monstrosities."

A. H. Kennedy: "Parasitism in the Horse."

L. Stevenson: "Diseases of the Domestic Rabbit."

C. E. Phillips: "Acidophilus Milk Therapy in Scours."

R. A. McIntosh: "Acetonemia—Treatment and Observations."

F. W. Schofield: "Nature of Mastitis Infections."

J. S. Glover and C. D. McGilvray: "Brucellosis—Blood Testing."

The officers of the provincial association are: **H. S. MacDonald**, Toronto, *president*; **A. R. Campbell**, Hensall, *1st vice-president*; **E. F.**

Johnston, Carp, *2nd vice-president*; and **G. A. Edge**, Toronto, *secretary-treasurer*.

s/G. A. EDGE, *Secretary-Treasurer*.

Pennsylvania

Keystone Veterinary Medical Association.—At the closing meeting of the season, the Keystone Association elected the following officers for the 1944-45 term. **Vincent W. Ruth**, Lansdale, *president*; **J. V. McCahon**, Downingtown, *vice-president*; **Donald G. Lee**, Drexel Hill, *treasurer*; **Rex Howard Brooks**, Philadelphia, *recording secretary*; **Raymond C. Snyder**, Upper Darby, *corresponding secretary*.

s/RAYMOND C. SNYDER, *Secretary*.

Puerto Rico

The Sociedad Insular de Medicos Veterinarios.—The association of graduate veterinarians, organized in Puerto Rico in 1943 held its first annual assembly June 3-4, 1944, in San Juan. The meeting was held in the amphitheatre of the School of Tropical Medicine in San Juan and was presided over by President **Carlos M. Muniz** (O.S.U., '35).

The program consisted of an executive session on June 3 at which reports of committees and officers were presented, a plan of organization for an insular council on animal sanitation was discussed, and election of officers for 1944-45 took place.

On June 4, there was a convocation addressed by **Dr. P. Morales Otero**, director of the School of Tropical Medicine and by President **Muniz**, and at which the guests of honor were presented. These included **Dr. Otero**, **Dr. Jose M. Gallardo**, Commissioner of the Department of Instruction, **Lt. Col. Curtis W. Betzold**, V.C., U. S. Army, **Sr. Luis A. Izquierdo**, Commissioner of the Department of Agriculture and Commerce, **Dr. Carlos Munoz MacCormick**, president of the medical association of Puerto Rico, and **Dr. R. A. Vonderlher**, director, District No. 6, U. S. Public Health Service.

The scientific session, **Dr. Jaime Bague** presiding, had the following program:

Garner J. Grissman, V.C., U. S. Army: "Phenothiazine Intoxication in Horses Fed Sugar Cane Tops."

Lowel Barnes, Bureau of Animal Industry: "Problem Herds in the Eradication of Bovine Tuberculosis in Puerto Rico." Discussion opened by **Francisco Menendez Guillot**.

Enrique Koppisch, Dept. of Pathology, School of Tropical Medicine: "Nutritional Edema and Bacillary Dysentery in the *Macacus Rhesus*." Discussion opened by **Marianne Goettsch**.

Alfonso Rivera, Dept. of Agriculture and Commerce: "Anaplasmosis in Cattle."

Garner J. Grissman, V.C., U.S. Army: "Pe-

cular Small Animal Diseases Encountered in an Army Air Base."

O. A. Lopez Pacheco, Hospital for Animals of Hato Rey: "Fits and Convulsions in Dogs."

Maj. Richard T. Gilyard, V.C. U.S. Army: "Venezuelan Encephalomyelitis in Trinidad."

A. E. Baer, Bureau of Animal Industry: "Bovine Brucellosis in Puerto Rico." Discussion opened by Angel Pou.

Lt. James H. Steele, U.S. Public Health Service in San Juan: "Public Health Problems of a Veterinarian."

Exhibits were displayed by Abbott Laboratories, Lederle Laboratories, Sharp and Dohme, and Winthrop Chemical Company.

s/O. A. LOPEZ PACHECO, *Secretary-Treasurer*.

South Carolina

State Association.—The S. C. Association of Veterinarians held its thirty-fifth annual meeting at Columbia, June 26-27, 1944, Will T. Dunn, Greenville, *president*; J. G. Gibson, Florence, *vice president*; and R. A. Mays, Columbia, *secretary-treasurer*, officiating. F. Porter Caughman, Sr., Columbia, was the toastmaster at the banquet, and President Charles W. Bower of the AVMA, the principal speaker. The announcement contains the following technical program:

C. G. Cushman, Dairy Extension Service, Clemson College: "The Importance of Roughage in Dairy Cattle Feeding."

M. M. Leonard, Asheville: "Mastitis Control in Dairy Cattle."

Guy A. Railsback, field representative, Cutter Laboratories, Chicago. "Hog-Cholera Vaccines—B.T.V. and Crystal Violet."

B. Courtney McLean, Aiken: "Lameness in Horses."

Charles W. Bower, Topeka, Kan., president, American Veterinary Medical Association: "Some Small Animal Therapeutics."

Moving pictures, a question box, and a meeting of the Ladies Auxiliary were included. The officers of Auxiliary are Mrs. B. C. Talley, Bennettsville, *president*; Mrs. J. H. Moore, Charleston, *vice-president*; and Mrs. D. O. Kitchen, Greenville, *secretary-treasurer*.

s/R. A. MAYS, *Secretary-Treasurer*.

Texas

The Case of "Lit-Up" Meat.—The Department of Veterinary Medicine, A. & M. College, made the headlines of a United Press dispatch of June 20, when a frightened Negro rushed to the police station at Mexia and reported that meat in his icebox was giving off a ghostly glow. Fantastic as was the story, it was found to be true, and stranger still no expert on meat could explain the phosphorescent phenomenon.

A check of meat stores revealed the same phenomenon in five of them. So, the matter was turned over to the veterinary college for solution. Details will come later.

West Virginia

Earl N. Moore, D.V.M., assistant animal pathologist, West Virginia Agricultural Experiment Station, Morgantown, has resigned to accept the position of poultry pathologist, University of Delaware, effective, July 1, 1944.

Wyoming

Wyoming's New State Veterinarian.—Dr. G. H. Good (K.C.V.C. '16) was appointed executive officer of the Wyoming Livestock and Sanitary Board and state veterinarian on May 1, 1944, succeeding the late Dr. H. D. Port who died April 25, 1944.

Dr. Good was born July 21, 1893 in Wash-



Dr. G. H. Good

ington, Kans. and moved with his parents to Wyoming in 1903. After receiving his veterinary degree from Kansas City Veterinary College in 1916, he engaged in private practice in Wyoming and also did some state work. He served as first lieutenant in the Veterinary Corps, World War I, and after being discharged again engaged in general practice in Wheatland, Wyo. for three years. He then became deputy state veterinarian and continued in this capacity until the death of Dr. Port.

Dr. Good is a past-president of the Wyoming Veterinary Medical Association, a member of the Masons, American Legion, and the Episcopal Church. He joined the AVMA in 1918.

STATE BOARD EXAMINATIONS

Massachusetts—The Massachusetts Board of Registration in Veterinary Medicine will hold its next examination at the State House, Boston, Mass., Oct. 24-25, 1944. The latest date for filing applications will be Oct. 10, 1944, and all applications must be accompanied by a fee of \$15.00 and a copy of birth certificate. Address inquiries to B. S. Killian, secretary, Room 413-N, State House, Boston 33, Mass.

COMING MEETINGS

Vermont Veterinary Medical Association. The Tavern, Montpelier, Vt., Aug. 12, 1944. G. N. Welch, 43 Union St., Northfield, Vt., secretary-treasurer.

American Veterinary Medical Association, eighty-first annual meeting. Palmer House, Chicago, Ill., Aug. 22-24, 1944. J. G. Hardenbergh, 600 S. Michigan Ave., Chicago 5, Ill., executive secretary.

American Animal Hospital Association. Palmer House, Chicago, Ill., Aug. 25, 1944. R. E. Ruggles, P. O. Box 303, Moline, Ill., secretary.

American Association for the Advancement of Science. Cleveland, Ohio, Sept. 11-16, 1944. Sam Woodley, Smithsonian Institution Bldg., Washington 25, D. C., assistant secretary.

Texas Veterinary Medical Association. Texas A. & M. College, College Station, Texas, Sept. 25-26, 1944. E. A. Grist, 5101 Calmont St., Fort Worth, Texas, corresponding secretary.

American Public Health Association. Hotel Pennsylvania, New York, N. Y., Oct. 3-5, 1944. Reginald M. Atwater, 1790 Broadway, New York, N. Y., chairman, program committee.

Short Course for Veterinarians. Purdue University, Lafayette, Ind., Oct. 5-6, 1944. C. R. Donham, Dept. of Veterinary Science, Purdue University, head.

Eastern Iowa Veterinary Medical Association. Hotel Montrose, Cedar Rapids, Iowa, Oct. 10-11, 1944. C. C. Graham, Wellsburg, Iowa, secretary.

Pennsylvania State Veterinary Medical Association. Penn Harris Hotel, Harrisburg, Pa., Oct. 19-20, 1944. R. C. Snyder, Walnut St. and Copley Rd., Upper Darby, Pa., secretary.

Florida State Veterinary Medical Association. Clarendon Hotel, Daytona Beach, Fla., Oct. 30-31, 1944. J. V. Knapp, Box 389, Tallahassee, Fla., secretary.

United States Live Stock Sanitary Association. LaSalle Hotel, Chicago, Ill., Dec. 6-7-8, 1944. R. A. Hendershott, Trenton, N. J., secretary-treasurer.

BIRTHS

To Capt. (K. S. C., '40) and Mrs. Carl F. Erickson, 42nd Veterinary Company, Camp Carson, Colo., a daughter, Clarice Elaine, Jan. 7, 1944.

To Dr. (I.S.C., '37) and Mrs. R. L. Oettiker, Marshfield, Wis., a son, James Loy, April 3, 1944.

To Dr. (K.S.C., '41) and Mrs. F. E. Lichlyter, 203 N. Summit, El Dorado, Kan., a daughter, Sharon Lee, April 29, 1944.

To Dr. (O.S.U., '37) and Mrs. David Splaver, 1222 S. Indiana, Los Angeles 23, Calif., a daughter, Gail Irene, May 9, 1944.

To Dr. (I.S.C., '34), and Mrs. W. A. Winslade, 902 Lebanon Ave., Belleville, Ill., a daughter, Rita Catherine, May 24, 1944.

To Dr. (ONT., '42) and Mrs. W. B. Durrell, Ontario Veterinary College, Guelph, Ont., a son, Roderick Winfield, June 14, 1944.

To Dr. (WASH., '41) and Mrs. Lelf A. Septon, 901 O Ave., La Grande, Ore., twin boys, July 5-6, 1944.

To Dr. (K.S.C., '41) and Mrs. D. O. Manley, 203 E. Main, Norton, Kan., a son, David Edward, July 11, 1944.

To Dr. (I.S.C., '42) and Mrs. Hans A. Grell, 914 E. 25th St., Bryan, Texas, a son, James Craig.

To Dr. (A.P.I., '42) and Mrs. B. F. Cox, 470 Samford Ave., Auburn, Ala., a son, James Franklin.

MARRIAGES

Dr. E. C. Krantz (O.S.U., '43), 737 3rd St., S.E., New Philadelphia, Ohio, to Miss Corinne Philabaum, Dover, Ohio, Nov. 6, 1943.

Dr. Helen L. Forsythe (Wash., '41), 1023 E. Waco St., Dallas 16, Texas, to Lt. (j.g.) Robert P. Reiley, Aberdeen, Wash., Jan. 12, 1944.

Lt. Emanuel S. Cooper (Colo., '42), 1547½ Woodster St., Los Angeles 35, Calif., to Miss Florence Charlotte, San Francisco, Calif., May 29, 1944.

Dr. Paul E. Ayres, (M.S.C., '43), 2065 Lochmoor Blvd., Grosse Pointe Woods, Mich., to Miss Marianne Kuhn, Silver Spring, Md., May 29, 1944.

DEATHS

Wayne V. Billhymer (Ind., '18), 47, Arcadia, Ind., died recently. He was admitted to the AVMA in 1941.

Gus M. Hall (A. P. I., '11), 57, Tensaw, Ala., died Febr. 29, 1944. He had been in the service of the BAI, stationed at Moultrie and Montgomery.

LOCKHART RABIES VACCINE

Ovine Origin

Phenol Killed

Mouse Tested

meets all the requirements of a good vaccine. Surpassing a hundredfold or more the minimum requirements for potency, it is a sterile, safe, neutral, smooth emulsion and is almost completely NON-IRRITATING WHEN INJECTED.

Recommended dosage:

Minimum dose5 c.c.

Dogs between 25 and 50 lbs. weight.....1 c.c. for each 5 lbs. weight

Dogs over 50 lbs. weight.....10 to 15 c.c.

Injections should be made subcutaneously.

Prices:

5 c.c. vial.....	\$.50	Canine
6/5 c.c. vials.....	2.50	Cave
50 c.c. vials.....	3.00	Cast

... less usual 10% trade and 2% cash discount.

* * *

ASHE LOCKHART, INC.

**"Producers of Better Biologicals
for Graduate Veterinarians."**

800 Woodswether Road

Kansas City, Missouri

Member Veterinary Exhibitors' Association

PRINTING PRODUCTS CORPORATION—CHICAGO

To encourage
VETERINARIAN DIRECTION
 of all
HERD DISEASE CONTROL

It is JEN-SAL's policy to help the VETERINARY PROFESSION in every possible way. Our latest step in this direction is a new schedule of ethical advertising on the control of Bang's Disease. A typical ad is shown in actual size at the right; the leading dairy papers carrying these ads are listed below.

- **AYRSHIRE DIGEST**
- **GUERNSEY BREEDERS' JOURNAL**
- **HOARD'S DAIRYMAN**
- **HOLSTEIN FRIESIAN WORLD**
- **JERSEY BULLETIN**
- **SHORTHORN WORLD**



For effective control of BANG'S DISEASE, every calf should be vaccinated Jen-Sal's tested BRUCELLA ABORTUS VACCINE is produced with the aid of the most modern scientific equipment and under the personal direction of skilled veterinary bacteriologists.

Your assurance of
HEALTHIER FUTURE BREEDING STOCK
 . . .

Veterinarian's
CERTIFICATE OF BANG'S DISEASE VACCINATION
 This is to certify that I have this day vaccinated the following described calf against Bang's Disease with
Jen-Sal BRUCELLA ABORTUS VACCINE
 Serial No. _____
 Prepared under Government License No. 107, from U.S.A.I. Strain No. 19
 Owner John Doe
 Address Farmville, N.Y.
 Animal's Age 7 Months Breed Dairy Weight 400
 Registration No. 6-984 Name Doe's Best
 Date 5-30-44 Signed, D. John Jones

A certificate like this for every calf in your herd today means healthier future breeding stock—plus:

1. Higher values on animals you may sell.
2. Better calf crops.
3. A safe milk supply.

The best Bang's Disease control method known is complete herd supervision by your own veterinarian—plus regular calfhooed vaccination with a tested, approved preventive like Jen-Sal BRUCELLA ABORTUS VACCINE.

Jen-Sal



BRUCELLA ABORTUS VACCINE
 Available thru your VETERINARIAN

A product of the Jensen-Salsbery Laboratories, Inc.